Standardization

News Magazine of the American Standards Association, Incorporated

Testing IBM's Electronic "Brain"

(See story on IBM, page 315)

DECEMBER 1950

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Company Members—More than 1900 companies hold membership either directly or by group arrangement through their respective trade associations.

Marginal Notes

Merry Christmas and Happy New Year—

In wishing our readers a Merry Christmas and Happy New Year, STANDARDIZATION is aware that with the new year American industry and the American public face some of the most serious decisions in U.S. history. Standardization as carried out through the cooperative efforts of manufacturer, user, technical expert, and government representatives also faces 1951 with serious problems ahead.

In this last issue of 1950 a number of articles point to standardization ideas and programs that may be intensified during the coming year.

Shortages in consumer goods and rising prices may well place greater emphasis on the use of standards for products used by home makers. The business viewpoint on standards for consumer goods (page 305) is thought-provoking in its approach. The author is well acquainted with the subject because of his experience with Commercial Standards developed through the U.S. Department of Commerce.

The 25-year anniversary of the American Gas Association's Testing Laboratories (page 310) offers a practical example of one industry's experience in applying standards to products for home use. Minimum standards put into effect 25 years ago would be entirely inadequate today. During these 25 years not only have American Standard requirements kept pace with technical developments in the industry, but they are credited with having improved the effciency and safety of the entire industry's product.

A forward look at 1951 will foresee an increasing impact by Government purchasing on industry's production facilities. Methods are already available for softening this impact by Government use of industry's standards wherever possible. Air Force recommendations that the

Armed Services use photographic chemical standards based on American Standards (page 312) offer an example of such a policy.

The IBM "brain" featured on this month's cover typifies current technological developments that can be expected to make more headlines during 1951. Curt I. Johnson, Customer and Production Engineer in IBM's Research and Engineering Laboratory at Endicott, New York, where the "brain" was produced, tells about the standardization work that underlies that company's operations (page 315). Graduate of Chalmers Technical Institute at Goteborg, Sweden, Mr Johnson came to the United States in 1926. He is a member of the American Society of Mechanical Engineers and the American Gear Manufacturers Association. Having an interest in national as well as company standards, he represents the Office Equipment Manufacturers Institute on a number of ASA committees on ball and roller bearings.

Our Front Cover

Robert R. Seeber, Jr, co-inventor of IBM's "Brain", the Selective Sequence Electronic Calculator, is shown on the cover making a routine test with an electric volt meter in the electronic "memory" section of the calculator. The thousands of electronic tubes used in this section of the "Brain" are the same size as the radio tubes used in a home set.

IBM has a staff of 550 research engineers, inventors, and designers at work in the Endicott, N. Y.; Poughkeepsie, N. Y.; and New York City plants. The giant calculator was dedicated to science by Mr Thomas J Watson, IBM Board Chairman on Jan 27, 1948. Since 1914 IBM has developed over 140 different types of machines, from which have come more than 800 basic models. For the story of standardization in the IBM plants and more pictures of the IBM "Brain", turn to page 315. *IBM photos.*

Opinions expressed by authors in STANDARDIZATION *are not necessarily those of the American Standards Association.*

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Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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ASA

Reg. U. S. Pat. Off.

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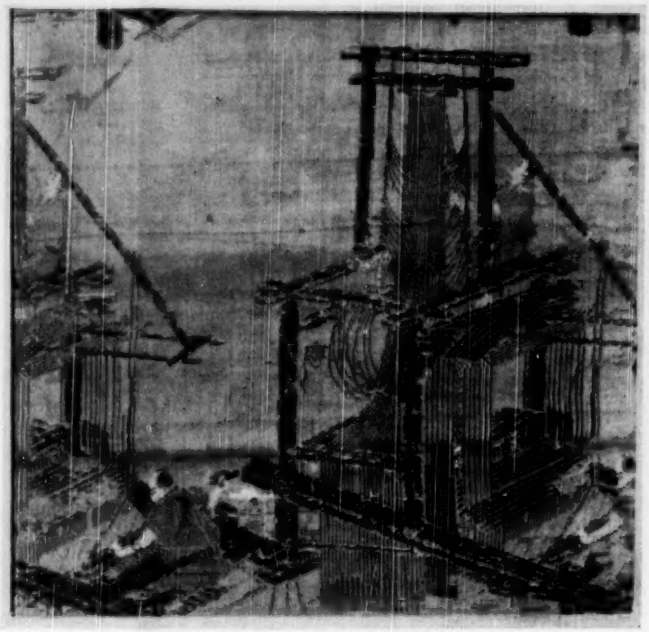
A Business

Courtesy of the Metropolitan Museum of Art



The intricate hand-embroidered Mandarin-Square tiger (above) was used as a military official's insigne of rank in early Eighteenth Century China. It is embroidered in satin and couching stitches. It was shown as part of the 1950 "In the World of Silk" exhibition at the Metropolitan Museum of Art, New York.

Below, an early hand-operated loom for weaving silk is shown in operation in a Nineteenth Century Japanese brocade, also in the Metropolitan Museum, New York.

Approach to Consumer Standards

by
Thomas C. Blaisdell, Jr.
Asst Secretary of Commerce

ARCHAEOLOGISTS measure the richness of ancient cultures by the evidence of accomplishment in the textile arts. The fine fabrics of past ages remain a joy to many of us whether we are technicians or not, but the greatest joy has been created by our growing ability to make textiles available to more and more people throughout the world at steadily declining costs. These declining costs are represented not only in terms of money. They are represented by the declining necessity for using the muscles and eyesight of men, women, and children, and by building intricate machines driven by mechanical power to turn out textiles by the millions of yards.

New Wealth—New Problems

The application of power to the cotton textile industry first in England, then on the European Continent, and later in other parts of the world, was the foundation of the modern textile industry. We have seen the creation of various raw materials and a constant increase in the variety of fabrics.

Modern technology creates new wealth, new blessings; but it also brings with it new problems. For instance, mass production—and mass consumption—would be impossible without a high degree of standardization. And at the same time, as a mass production economy becomes more complex, the problem of obtaining agreement on standards becomes more difficult.

The growth of commonly accepted standards has made possible the mass production of goods on a scale heretofore unknown. And we can only guess at possibilities of even greater achievement in mass production as the result of further standardization. The necessity for governmentally established standards has been recognized for many years. Some of you will recall that the adoption of the metric system was a dramatic and highly useful standardization of measurement. The necessity for bringing the metric standard of measurement together with some other systems, such as our own pragmatically developed system, has created some of the most interesting problems in the modern technical world. Agreement on internationally accepted standards is recognized by many as a great step forward in extending the wealth-producing possibilities of the Western world.

Kinds of Standards

The kinds of standards that have been developed in the whole standards movement were summarized many years ago by the Director of the Bureau of Standards when he classified standards as follows: standards of measurement, standard constants, standards of quality, standards of performance, and standards of practice. The ability to compare, to reproduce, and explain many developments is made possible only by the general acceptance of standards.

The acceptance of agreed standards of quality has become more and more necessary in the field of production. By the same token, such standards have become of significance in the field of distribution. Today we are concerned with another phase of the problem; that is, to what extent should we make standards available to consumers so that they may know what they are buying?

Individual business firms have long known the value of informing their customers of the quality of their products. And they have protected their reputation for quality in interesting ways. We all remember that Spearmint gum was not available during the war. I understand that the Wrigley Company refused to manufacture this familiar product because the proper ingredients were not available to keep it up to the expected standard of quality. We know also that some major distributors, such as Sears, Roebuck and Macy's, have maintained their own testing laboratories to make sure that the goods they buy for resale measure up to what they consider their own standards.

Such practices make good business sense. A satisfied customer is a steady customer. In our economy, customers are fully as aware of quality as of prices. But the bettering of quality and the improvement of methods of testing to assure that quality are not sufficient. The consumer must become more skilled in judging for himself the ingredients of high quality. The time is past when we can ask people to place their complete reliance upon brand names without telling them why the product is good.

Labeling Misused

Advertising and labeling, when properly used, have accomplished this end to some extent. As we all know, however, they have not always been properly used. In fact, their misuse has been so frequent as to cause the Federal and State governments and industry itself to take action to bring a stop to abuse and to instill renewed confidence in the

We are presenting here an abbreviated version of an address given by the Assistant Secretary of Commerce at the 29th Annual Convention of the American Association of Textile Chemists and Colorists, September 28. In this part of his talk, Mr Blaisdell discusses principles and a philosophy on the need for standards for consumer goods.

commodities that are properly represented to the public.

Federal laws have been promulgated controlling labeling. Among these laws two of the most important are the Food, Drug, and Cosmetics Act and the Wool Products Labeling Act of 1939. As you probably know, the United States Department of Agriculture administers the Food, Drug, and Cosmetics Act, and that Department sets up standards and requires labeling to denote compliance with those standards. We need only make a trip to the grocery store with our wives to discover what this Act means to the housewife.

Most of you are familiar with the Wool Products Labeling Act of 1939, which has been interpreted and administered by the Federal Trade Commission. In requiring the labeling of a commodity as to its wool fiber content and in differentiating between new, reprocessed, and reused wool, it has done much to educate the consumer as to the kind of wool and the different kinds of fibers which may be in the commodity purchased.

By far the greatest effort to control quality and label goods for the consumer has been made on a voluntary basis by industry itself. This is effected in various ways: Through trade brands; certification by various testing organizations; informative labeling; standards adopted by technical organization such as the American Association of Textile Chemists and Colorists, the American Society for Testing Materials, and the Society of Automotive Engineers; standards adopted by trade associations; and commercial standards adopted by industry in cooperation with the Commodity Standards Division of the Department of Commerce.

Brand Names

Brand names, through advertising and labeling, have become household by-words. A brand name is an assurance of quality. A brand name is also an assurance of value. It is the modern equivalent of the personal relationship that existed between the craftsman and the customer before the days of mass production. But while brand names are an assurance of value, they are not enough to satisfy the consumer's hunger for more knowledge about the things he buys. For one thing, there are so many brand names. Which brand is better? What are the features of one brand as compared to another? The almost universal curiosity of consumers in the criteria of value is evidenced by the rapid growth of consumer groups and consumer services.

Industry itself in numerous instances is having its commodities certified by various testing organizations, and such commodities are labeled and advertised as "Tested and approved by the John Doe Laboratory." In practically every instance the standards by which such a commodity is judged as being satisfactory are those set up by the certifying organizations. It is hardly necessary for me to point out that some so-called "testing laboratories" are not motivated solely by an unimpeachable zeal for safeguarding the interests of consumers.

This approach to buying on the part of the consumer has and should certainly continue to stir business competition. This increasing demand for more informative labeling is a challenge that business men cannot afford to disregard as small talk. For some years far-sighted merchandisers have recognized the popularity of informative labels. Their cash registers quickly told them that it was good business from the profit standpoint to give consumers what they want; and consumers generally want what they understand. Facts are not destroyed by our failure to give them recognition. What happens psychologically when a person gets "stuck" on some product that he buys—trusting in the label or the advertisement? He loses faith in the firm that sells the product and in the firm that makes it. In addition, it is reasonable to believe that he loses some part, however small, of his faith in American business.

Macy's Bureau of Standards

Large retail stores assure customer satisfaction by testing goods they sell. Here, fadeometer tests lightfastness of textiles.

Purpose of FTC

One of the purposes of the Federal Trade Commission is to maintain faith in American business by weeding out unfair trade practices. Incorrect advertising and labeling are considered unfair practices. One of the departments of the Federal Trade Commission issues complaints against individual organizations concerning unfair advertising or labeling. If after complete investigation the complaint is found to be justified, "cease and desist" orders are issued. Another department of the Federal Trade Commission cooperates with business in promulgating for busi-

ness what are known as "Trade Practice Rules." These rules are issued in two groups—the first are based on the requirements of specific laws and the second are recommendations to the business to assure good trade understanding. So far, several Trade Practice Rules have been promulgated covering various fields of the textile industry. For the most part, in addition to the usual trade agreements covering such things as "discounts" and the like, the rules cover the labeling of textiles as to fiber content. Such rules generally do not require labeling but specify how the textiles should be labeled if labeling is done.

An informative label is the best method of assuring good trade practice. In effect, it not only strengthens consumer reliance in the producer's and distributor's good faith, but it enables the consumer to decide for himself whether the product is of the quality he desires. To most consumers the brand is an assurance of quality and value. But an informative label is a method by which producers and distributors aid consumers in making a choice. With a multitude of purchases to make daily, the consumer needs and wants intelligible facts presented in simple, easy-to-grasp, quickly understood form.

"Informative Labeling"

As I am using the expression "informative labeling," it means any type of labeling which gives information concerning the quality of the product. There are two schools of thought regarding the extent to which manufacturers and distributors should go in educating the customer.

According to one school of thought, an informative label should include as much technical information as possible concerning the product. With regard to textiles, for example, the label should include such information as breaking strength and number of yarns to the inch in both the warp and the filling; its resistance to fading in light, laundering, or cleaning, dry and wet pressing, atmospheric gases, etc; its resistance to water penetration depending on the use of the products; its fiber content; and other characteristics depending on the type of product and its use.

Macy's Bureau of Standards

Thermal transmission apparatus determines "warmth" of fabrics.

The other school of thought prefers a simpler type of label carrying reference only to compliance with a standard of quality of national recognition amplified where necessary by instructions concerning care in the use of the product. These instructions may include such items of care as will indicate whether the product is washable or should be drycleaned, and if washable, the method to be used.

The opponents of the elaborate informative labeling plan feel that the average consumer is not sufficiently versed in the pros and cons of the necessary properties of a product to use the information intelligently. He is confronted with a lot of data which may vary but slightly among the products of different manufacturers. Although these slight differences may have no bearing on the quality of the product, he, not knowing that, may be induced to purchase the most expensive.

Consumer's Opportunity

The proponents of the elaborate informative labeling plan feel that such a plan makes it possible for a consumer to make his own comparison between products. The consumer is thus in a position to purchase to his best advantage. As regards the lack of technical knowledge by the average consumer, the proponents feel that this difficulty can be overcome by educational advertising and by other means of publicity.

Before informative labeling can be adopted by a branch of an industry, four conditions must be met:

1. There must be accepted standards on a national basis for qualities on which it is important to give information;
2. There must be accepted terminology to express those standards;
3. Means must be adopted, by voluntary or government action, to make sure that misleading terms are not used; and
4. Means must be found for educating the consumer as to what the accepted terminology means in terms of service and use.

The general subject of informative labeling is highly controversial. But by far the most controversial phase of the subject is what is known as "grade labeling." As Miss Jessie V. Coles in her book *Standards and Labels for Consumer's Goods* puts it —"Grade labeling appears to some people to be the most important, if not the only aspect of the subject of standards and labels for consumers' goods. It has been discussed by more people, at greater length, and the discussions have generated more heat than any other phase of the subject. Whether or not consumers' goods should be labeled according to grades based on standards, especially whether or not grade labeling should be compulsory, is an honest-to-goodness controversy."

Much of the controversy over grade labeling developed at times when proposals were made that it be made mandatory. Compulsory grade labeling was put into effect on certain products by the OPA during World War II as a means of establishing some of its price orders. Subsequently, however, compulsory grade labeling was entirely eliminated.

Voluntary grade labeling has been found to be practical for a number of consumers' goods, but so far it has

been applied to only a limited range of products.

Everyone who has plunged into the turbulent problem of grade labeling has discovered quickly that the real difficulty lies in deciding what terminology to use. Ller J. Fairchild, when Chief of the Trade Standards Division of the National Bureau of Standards (now the Commodity Standards Division of the Office of Industry and Commerce) investigated this subject thoroughly and found a hodge-podge of grade terminology being used for the 64 commodities investigated. He found no solution to the terminology problem, but he did arrive at the following conclusions and principles which he felt deserved consideration:

"1. It seems rather obvious that grade terminology and designations have been developed by specialists in their particular fields and that, broadly speaking, the grading systems are not coordinated.

"2. There is an underlying complexity based on diverse methods of tests, diverse criteria, characteristics and uses; and this complexity is real, deserving of respect, difficult to simplify, and may not lightly be brushed aside.

"3. In setting up grade designations or terms, provisions should be made for future developments, even those unforeseen and unpredictable improvements which from time to time occur in most every field, and toward which we are constantly striving.

"4. A master order of grade terms might well be considered, starting with the lowest present grade at the bottom and proceeding upward in the direction of the ideal, with plenty of room at the top for unforeseen developments. Possibly this could follow the order of numerical designations of types for colorfastness to light of woven fabrics. There will doubtless continue to be some products for which it is impracticable to make a general decision as to what is the ideal, such as in the SAE steels, in the fertilizers, or feldspar. But, perhaps, even for these commodities, the individual identification or designation for each criterion might be arranged in the order toward the ideal, with room at the top for unforeseen radical improvements.

"5. In spite of the present confusion, complexity, or obvious absence of foresight in establishing grade terminologies, there seems to be room for considerable further coordination, simplification, allowance for future progress, and further study of the underlying principles for the formulation, selection, and revision of grade terminology systems to the end that they may be as simple, consistent, and understandable as may be practicable, as flexible for accommodation of future developments and as enforceable as possible."

I have referred to the need of standards that will have a nationwide acceptance. These are essential for any type of labeling which may be employed—informative, grade, or those indicating compliance with a standard. The Department of Commerce is prepared, through its Commodity Standards Division, to assist industry in formulating, developing, and promulgating its own standards. These programs are purely voluntary and have not and will not be fostered as "must" programs. They are provided to businessmen as a means whereby standards and simplified practices can be negotiated when requests for such aid are initiated by business, and when such standardization is in the interest of the consuming public.

Macy's Bureau of Standards

A test for snag resistance of hoisery.

A Coordinating Body

The Department of Commerce acts as a coordinating body in bringing together the viewpoints of the producing, distributing, and consuming elements of an industry. The agreed-upon standard is then distributed among all interested for written acceptance. After we receive acceptances representing a satisfactory majority of the production, distribution, or consuming volume and if we have no active and valid opposition from anyone, the standard is promulgated as a recorded voluntary standard of the trade.

Each commercial standard contains the recommended wording of a statement to be printed on a label indicating compliance with the requirements of the commercial standard. This recommended wording is the consumer's guarantee that he is obtaining a product which will give him satisfaction for the purpose intended.

Statement on Label

The wording of this identifying statement is:

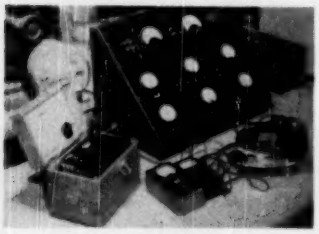
> These ———s comply with Commercial Standards CS——, as developed by the trade, under the procedure of the Commodity Standards Division and issued by the U. S. Department of Commerce.

In numerous instances groups of manufacturers and trade associations have not been content to use only

the identifying statement, but have adopted special labels which are incorporated in the standards.

One such label has been adopted by the Textile Bag Manufacturers Association for a new commercial standard about ready for promulgation; namely, Cotton Flour Bag (Sack) Towels.

Another one has been adopted by the group producing rayon jacquard velour for the commercial standard on Rayon Jacquard Velour (With or Without Other Decorative Yarn), CS103-48.



Macy's Bureau of Standards

Electric iron is checked for heating quality.

Commercial standards are not limited to products for domestic consumption but also cover products for export. Standards for export are printed in several languages. As an example, Power Cranes and Shovels (for export), Commercial Standard CS90E-47 was promulgated.

"Puffing" vs Labeling

. In any case, modern industry and business have come to recognize to a greater extent than ever before the necessity for telling the consumer just what he is buying. In spite of all the blandishment of much of our system of advertising, it does spread knowledge on a wide scale. Customers are, by and large, aware of the arts of "puffing," as they call it in legal terms, and turn away from overstatements to the more factual materials on which they can depend. Thus, informative labeling takes its place in the system of business. Distributors learn to rely on the manufacturer's statement about his merchandise; they learn to judge quality. But, above all, they learn how to make and form judgments. When a consumer judges for himself, he no longer holds the distributor or the manufacturer responsible for his purchase. The wide knowledge of the product is the important thing. People must learn, particularly in this complicated field of textiles, what is what and why.

Manufacturers of textiles are faced with unusually difficult problems. The invention of new fibers and the problems created by their use call for the widest dissemination of knowledge. They call for knowledge of consumer standards, not in the sense of placing limits on industry, but in the sense of improving its relationship with the consumer. Consumer labeling can be a method of expanding the satisfaction of the consumer with what he gets. This is real wealth production. This is what it is all about—why we pay attention to it.

AHEA Works on Sheets and Housedresses

DISSATISFIED with the way the American Standard on sheets and sheeting, approved in 1948, reflects research findings, the American Home Economics Association is issuing AHEA consumer specifications for sheets. "It is hoped," the *Journal of Home Economics* declares, "that the AHEA standard will be valuable when the revision of the ASA Standard is reconsidered in 1950." The Association plans to print the specifications for wide distribution to manufacturers, distributors, and consumers.

The consumer interests committee of the American Home Economics Association is the coordinating agency for all the Association's consumer interests activities. Its annual report, published in the September issue of the *Journal*, shows that it has helped in giving wide publicity to the American Standard Dimensions, Tolerances, and Terminology for Home Cooking and Baking Utensils, Z61.1-1949. A letter to AHEA members called attention to the standard and suggested how to use it to best advantage. It also pointed out the need for demonstrations, exhibits, and other promotion and publicity. A copy of the standard was sent to a selected group of about 800 Association leaders.

Pamphlet Prepared

In connection with work on standards for rayon, it is planned to distribute a pamphlet prepared by Pauline Beery Mack on the need for such standards. It is also planned "to work for rayon standards through our membership in ASA," the committee reports.

AHEA standards are being prepared outlining specifications for materials and construction used in house dresses made from three types of cotton fabric. Three manufacturers have made three dresses each in accordance with the proposed standards as a check on their usefulness. The dresses were displayed at the annual meeting of the American Home Economics Association in Boston in July.

Consumer Interest

This annual meeting featured a Town Meeting to discuss the question "What should the AHEA do about standards for consumer goods?" Reports indicate that a large attendance and lively discussion showed widespread interest in the subject. Standard equipment and foods were exhibited and the house dresses were modeled. Important features were pointed out on a television program. Subsequently, the executive board approved the tentative consumer standard for cotton house dresses and agreed that it should be made available to manufacturers and that it should be explained to AHEA members through the *Journal of Home Economics*.

Gas Industry Celebrates 25 Years of

WHEN Mr and Mrs Newlywed, carefully shopping for a new gas range or refrigerator that will give top service for the money they can invest, finally say, "We'll take that one," the chances are that they have been somewhat casually impressed by the fact that it wears an American Gas Association Laboratories Approval Seal. They may have realized that because the Seal is there they can depend on that piece of equipment to give them good service and to perform safely and efficiently. There can be no doubt, however, that they would be amazed to learn what that Seal really represents in terms of research, technical knowledge, and manhours spent by high-power experts from a wide variety of national groups. Actually, there would be little chance that they would get a stove or refrigerator without the Seal, since 95 per cent of all gas-burning appliances manufactured are now checked according to American Standards and by the American Gas Association Laboratories.

This Fall, the AGA Laboratories celebrated their twenty-fifth anniversary. In 1925 the first laboratory of the gas industry was set up to furnish technical data for use in developing standard approval requirements, and to test gas-burning equipment to determine whether it meets those requirements. For the past quarter-century they have served the gas industry and the public in both the United States and Canada, being the official gas appliance testing agency for the Canadian Gas Association.

Working with the AGA Approval Requirements Committee, organized as a sectional committee of the American Standards Association, the Laboratories have helped to develop safety and performance standards for gas ranges, water heaters, refrigerators, floor furnaces, clothes dryers, hot plates, incinerators and many other types of gas burning equipment —a total of 32 separate sets of standards or requirements for different types and kinds of gas appliances and accessories.

The Laboratories' 25-year program is credited with raising the standards of construction, performance and safety of gas appliances; eliminating inferior types of equipment; creating greater confidence on the part of the gas-consuming public in the merits of gas-burning equipment; and assisting gas companies and dealers in merchandising better types of equipment.

Performance Assurance

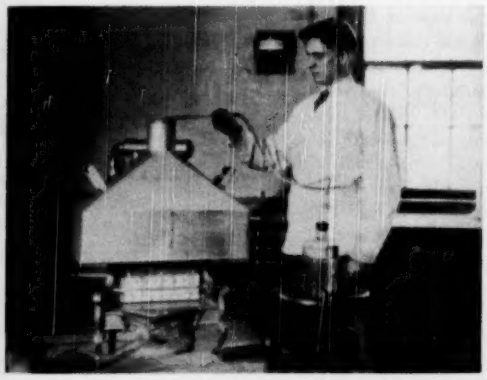
To Mr and Mrs Newlywed this means that the gas range they have just purchased has been tested to make sure the oven door will not collapse when their family-size Christmas turkey is pulled piping hot out of the oven and onto the oven door. The baking performance of the oven has been tested to make sure that the biscuits in the far corner will be as brown and well done as those in the center. Also tests of the top burners have shown that they heat instantly and evenly and will light quickly with the turn of the burner valve.

When Laboratories Approval Seal appears on a gas-burning appliance it also means that if there are power failures, the equipment will be protected by limit controls; and if Mr Newlywed forgets to clean or replace clogged air filters, the equipment will not overheat or catch fire. These are only a few of the safety and performance requirements agreed upon as standard and checked by the Laboratories on household equipment.

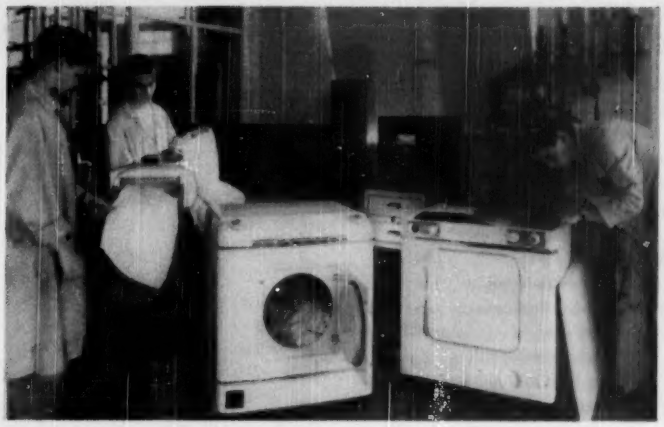
The Laboratories' services of standards extend also to installation requirements covering piping and appliances installed in buildings, conversion burners, and gas equipment for large boilers used for heating or power. These requirements are widely used by gas companies and building code authorities, and in many instances are incorporated in local building regulations.

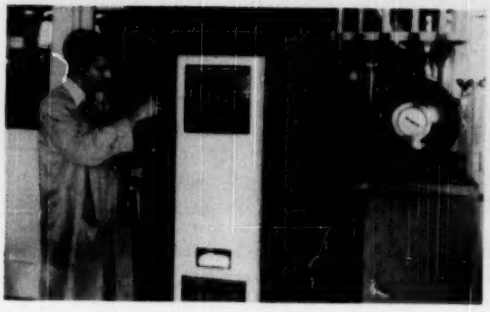
Although the first AGA laboratory was set up just 25 years ago, the standardization work was actually

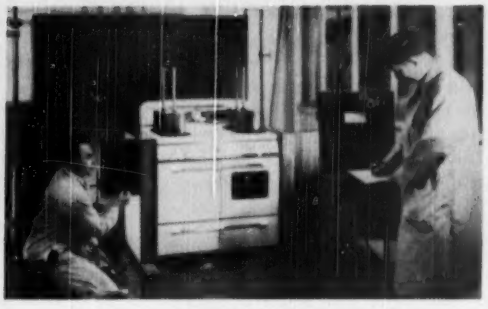
(*Continued on page* 327)



Consumer Service

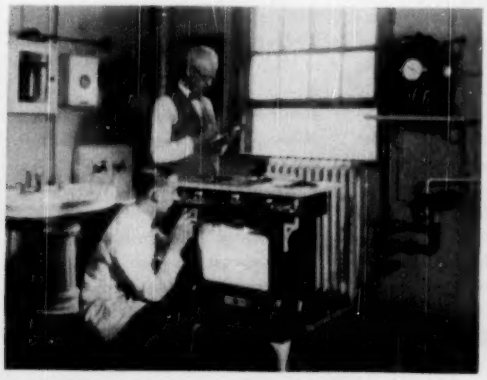






$1,000,000 Worth of Technical Services Every Year

AGA Laboratories had a modest beginning in 1925 with five employees working in 3,600 square feet in a rented building (page 310, left). Tests shown below on early models of gas ranges and space heaters were in accordance with the first approval requirements adopted in 1926. In 1928, the cornerstone was laid for the AGA's own building in Cleveland, now expanded to more than 40,000 square feet in Cleveland and Los Angeles. Picture at right (below) shows re-laying of cornerstone in 1945 after a fire. Above, new models of washing and drying machines, space heaters, and ranges are tested under modern conditions according to up to date editions of American Standard Approval Requirements. Technical services benefit both manufacturer and consumer.



Use of American Standards

by F. S. Schmitt

AN explanation as to why the Air Force is interested in the promulgation of specifications for photographic equipment and material is probably in order.

As of February 28, 1949, the Munitions Board Standards Agency assigned procurement of "Photographic goods including materials . . . that are common to photography . . ." to the Air Force.

Affecting specifications, the assignment reads as follows:

> "Development of Joint Military or Federal Specifications, when possible. Developing Recommendations on Standardization."

This assignment to the Air Force for the procurement, development of joint specifications and standardization of photographic goods and material is intended to implement the intent of the Congress that the Military Establishment shall have equipment and material that is interchangeable and in common use by each activity of the Department of Defense.

Advantages of Standards

The Air Force is thereby directed to recommend standards for photographic goods and materials to the many activities of the Department of Defense. The advantages are obvious, for instance:

(a) A lower price when buying in large quantities.

(b) Securing a better product when the quantities are such that it will pay a firm to tool up in assembly-line fashion for large production quantities.

(c) Standardization of requirements.

(d) Greater flexibility of the supply system to enable it to meet emergency situations; for example, on an order placed for Army use, the Navy could receive some shipments when conditions so warrant, et cetera.

The statistical data on savings in procurement of photographic goods bear out the fact that economies are possible when common centralized procurement is made.

Photography is largely based on chemistry and thus chemicals and combinations thereof keep us in business. An ever-present problem is the procurement of suitable chemicals for the particular operation that is contemplated, such as developing, printing, et cetera.

One of the most important considerations regarding chemicals is the standard of purity required. Many of our photographic chemicals or the basic elements thereof are used in other industries, some in large quantities and many in small quantities, often for laboratory work only. In many cases industry is familiar with the chemical for industrial (usually "Technical Grade"), or laboratory uses (usually "Chemically Pure"). The chemical industry, which includes our great friend the corner drug store, is familiar with the term "C.P." To us it means Chemically Pure. Naturally the price is high because C.P. means what it says. Do we need "Chemically Pure" chemicals for our processing practices? Can we accept a foreign element such as iron in a percent of 0.005 or must it be closer to 0.001? There is no sense in buying an expensive chemical when a lower priced one will do the job.

"What's in a Name . . .?"

In trying to reduce a large list of terms used to identify photographic chemicals, we ran across a new term. One firm had interpreted "C.P." to mean "Commercial Purity." What would be furnished under such a description?

A list of some terms which are being used in requisitioning photographic chemicals by photographers as well as by government agencies follows: A.R., Best Commercial Quality, C.P., C.P. Grade, Commercial Purity, Commercial Purity—Photographic Use, Commercial Quality, Photo, Photographic, Photographically Pure, Suitable for Photographic Purposes, Technical, Technical Grade, Technical Photographic, Technical Purity U.S.P., U.S.P. Purity. This list contains terms which have been used by both commercial photographers and government agencies alike.

Pity the poor purchasing agent, whoever he may be, who has to buy chemicals and use these terms as "standards." Such a system has worked in the past only because of a great amount of integrity and understanding on the part of the dealers who have supplied the chemicals. They usually knew what was really wanted and supplied a usable product.

In order to remedy a condition similar to that shown above, standards are required—standards of purity, performance, safety for the worker, and of maintaining quality of the chemicals.

How to Attain Standards

Standardization can be attained in only one manner—by sound engineering research backed by practical experience in the laboratory and field installations throughout the world, and by a willingness on the part of the personnel responsible for standards and specifications to waive minor or unessential points in order that materials and equipment may be specified which are usable by the majority of photographic personnel. A willingness to cooperate is basic. Fortunately we have cooperative personnel in our photographic work, both in industry and the Government.

The ASA has held a shining beacon before us for years in securing agreement among producers and users of photographic goods by means of American Standards.

The Federal Committee on Photography and Photolithography has the same viewpoint regarding standard-

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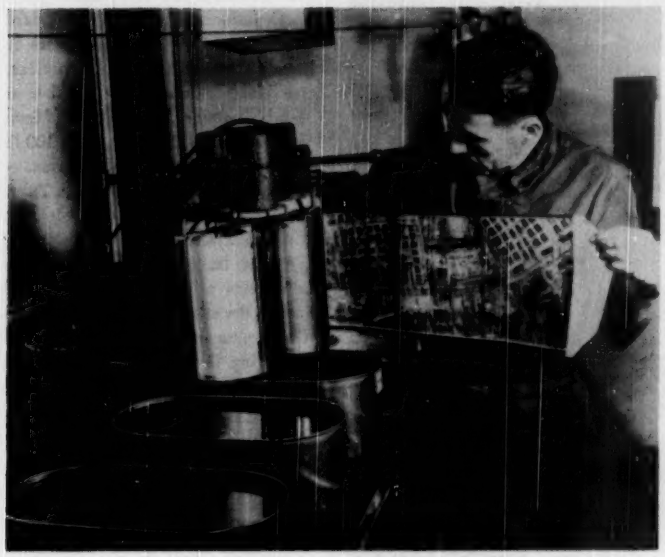
[**Editor's Note:** The Air Force has been given responsibility for developing and recommending standards for photographic materials and equipment for use throughout the Department of Defense. Here, the Air Force representative on the Federal Committee in Photography and Photolithography, tells why the Air Force recommended the use of American Standard specifications and methods of test for photographic chemicals, and why the committee adopted the recommendations, putting the American Standard requirements into effect for use by all the Armed Services.]

n Federal Specifications



Sergeant Mike O'Toole, Air Corps, inspects nearly processed strip camera print.

ization and is working steadily to produce photographic specifications which are usable by every department of the Federal Government, the foremost of which, from the commercial standpoint, is the Department of Defense.

The 40 or more standards on photographic chemicals prepared by Sectional Committee Z38 (Chairman, Mr Carroll V. Otis) constitute a noteworthy achievement.

The Government, especially during times like these, needs these standards.

Fullest Use

In order to make the fullest use of such standards for Government procurement it is necessary to incorporate these data into a Government specification, Federal or Military.

The ASA has gladly granted permission to use their data for the preparation of Government specifications. Thus industry and the Government are going to use the same standards. All of us benefit—every amateur photographer in the country benefits.

Since the standards approved by ASA have already been reviewed by industry it has been possible to save a great deal of time and paper work by adding a credit line somewhat as follows:

"The technical requirements of this specification are essentially the same as Z38.8 . . ."

Every specification prepared in the field of photography by any activity of the Department of Defense is intended for the use of all the armed services. Provisions are made for emergency specifications but the bulk of the specifications are intended to be fully coordinated Military or Federal specifications which are coordinated with interested activities of the Army, Navy, and Air Force, and with industry.

Federal specifications cover more individual chemical items than are covered by Military specifications. It is logical to continue preparing Federal specifications in order to complete the list of the more important photographic chemicals in the Federal series.

A Government specification is a description of equipment and materials which a Government agency may want to buy. A specification should describe something with a reasonable degree of accuracy.

The big advantage in Government agencies in using a standard approved by ASA as a basis for a specification is the fact that this standard has already been reviewed by industry and one or more firms in the United States are capable of making or producing the item in the desired degree of purity.

Industry "Know-How"

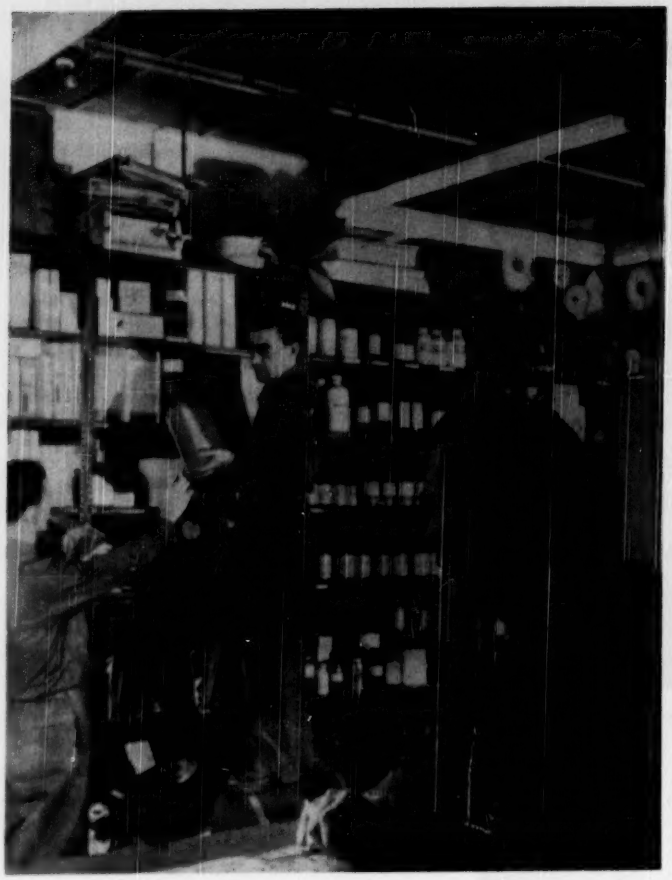
Our experience in the field of photographic chemicals has been very pleasant for those of us in the Government specification business because industry has written most, if not all, of the American Standards for chemicals. This means that we receive the benefit of industry's "know how" in a very practical document known as an American Standard.

Mr Raymond Davis, of the National Bureau of Standards has perhaps done more than anyone else in the Government service to recognize the value of American Standards for Government use and to disseminate this knowledge to other Government agencies.

A review of purchase orders at Air Material Command indicates a need for standardization in the field of photographic chemicals. The Air Force member on the Federal Committee for Photography and Photolithography suggested that a practical solution of the problem of providing Federal specifications for chemicals would be to use the American Standards for the technical data required and add the other necessary data required for Government specifications.

Almost as important as the technical requirements of the chemicals is PACKAGING. It seems amazing that such an apparently simple job as preparing photographic chemicals for delivery could cause so much trouble.

The term "Commercial Packaging"



Photographic laboratory stockroom maintains the great variety of chemicals, film, and paper needed for experimental work continually being carried on.

is often used for convenience and because it is thought to be simple and easy to understand. These attributed virtues, although superficially "obvious", often lose significance under the stress of competitive bidding. The Jones Company may package its chemicals in good containers, well designed, to stand some rough handling without breaking the package. The Brown Company may package its chemicals in a much cheaper container which will not stand up under rough handling. Both firms are honest in their statements that their product is "commercially packed."

Many firms which furnish photographic chemicals to the Government buy in large quantities from a large producer and package in the quantities desired. Thus the basic cost of the chemicals is about the same for these firms.

Next to the cost of the chemicals themselves is the cost of the packaging materials. These packaging materials may include moisture-impervious bags, fiberboard containers, wooden or plywood boxes, cans, plastic bags, glass bottles, steel drums, fiberboard drums, et cetera.

The Brown Company, by furnishing a cheaper pack, is able to underbid the Jones Company. According to law, unless an ironclad reason is furnished to the contrary, the award must go to the lowest bidder.

A review of packaging terms used by commercial photographers and by Government agencies uncovers a beautifully vague list something like this: 1 lb Bottle, 5 quart Bottle, Glass Bottle, 1 oz Container, 1 lb Container, 5 lb Container, 25 lb Container, 100 lb Container, 2 qt size Cardboard Container, Glass Container, Glass or Metal Container, Metal Container, Rip Strip Container, 100 lb Fiber or Metal Container, 1 gal Can, Metal Can, Corrosion Resistant Cans, 100 lb Carboy, Fiber Drums, Fiber Drums—Metal Tops and Bottoms, Glass Tube, Jar.

A description of a standard package must be developed that will not be expensive but will do the job of getting the chemicals to the user with a minimum of packaging cost. Over packaging is costly and so is under packaging—the happy medium is the ideal.

Processing

Mr Willis S. MacLeod of the Federal Supply Board evolved a plan to speed up production of Federal specifications without the sacrifice of quality. Upon the recommendation of the chairman, Mr Raymond Davis of the Federal Committee on Photography and Photolithography, specifications based on the American Standard are turned over to Mr MacLeod's office for processing into the form required for Federal specifications. A number in the 2000 series is assigned them. They are then mimeographed in the Bureau of Federal Supply Building and distributed to the interested agencies and bureaus, as procurement documents, ready for immediate use.

Meanwhile the specification is forwarded through the usual Government channels for comment. This procedure is to catch the "bugs" which seem to exist in any document which must serve so many agencies whose functions are so varied.

In order to enable the U.S. Air Force procurement division to buy photographic chemicals on a common standard until Federal specifications are available, the Photographic Laboratory of the Engineering Division has recommended to the Procurement Division that American Standards be

(*Continued on page* 318)

Engineering Standards at IBM

by Curt I. Johnson

Customer and Production Engineer, IBM Research and Engineering Laboratory, Endicott, New York

INFLUENCED by IBM's educational program to encourage and promote individual initiative and thinking, standards engineering in IBM has developed along educational and advisory lines rather than into hard and fast rules to cover all conditions. This approach to economy and efficiency in engineering and manufacturing by means of searching for the best available method is reflected in the collective engineering bulletins and memorandums published by a standardization group in the corporation's Production Engineering Department.

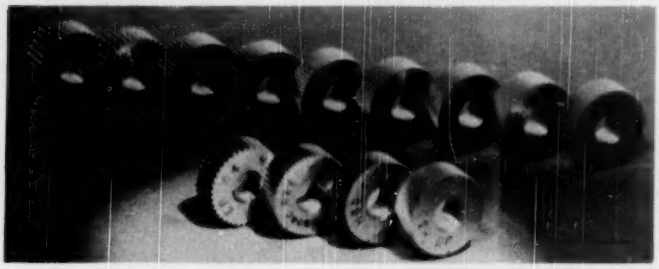
These publications constitute a condensation of efficient and economical practices developed in IBM's Manufacturing Organization over a period of years, the best available material in existing literature and supplemented by basic research whenever the need arises. Three adequately indexed volumes of such publications are issued to all engineering personnel. Further distribution is made to insure the availability of this information wherever it may be needed in the company's Manufacturing Organization. Engineering Bulletins on Design Procedure, Preferred Part Number Listings, and Material Specifications are the three major classifications in these volumes.

Engineering Standards in IBM have developed because of a recognized need for data that would permit preparation and use of engineering specifications and drawings in a uniform and economical manner. Prior to the issuance of these publications, each draftsman had notes of his own to which he referred frequently. These notes covering a variety of subjects, such as commercially used parts, various letters of instructions, and preferred solutions to reoccurring engineering problems, could not provide adequate or practical information for convenient use by the engineer.

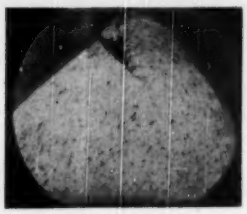
Related Problems

This organized program has developed because of constant demand for information as to the best technical knowledge and "know how." It is recognized that many engineering and design problems are not new in principle despite the novelty of application. The constant study of related problems frequently results in the development of new and better methods. A case in point is the engineering bulletin on the "Design of Extension and Compression Springs." Because the conventional formulas on spring design were inadequate to solve frequent problems dealing with dynamic loads and space limitations of springs, data on springs selected by test were established. Study of these data disclosed several relationships suitable for general design use. The material was compiled into a 23-page Engineering Bulletin, plus twenty pages of reference tables, and was distributed to the designers, draftsmen, engineers, and manufacturing personnel concerned with such problems.

This work received recognition outside of IBM, being presented as an ASME paper, and was described in detail in several of the technical journals.[1] At IBM, all persons concerned with spring engineering now have a practical guide available for their use. Even though specific problems may not be covered in the bulletin, the fundamentals are explained and sufficient data are presented to permit most problems to be solved. Quite obviously, the hundred or more other bulletins in the books did not receive such wide recognition, but each serves the same purpose—to highlight the best known method.



Four standard knurls now replace the large number used before Standards Department studied knurling techniques.



(Right) Micrograph of knurled tooth taken for study of material flow while knurling.

Knurling

Another development that has come out of the IBM Standards Department in recent months has been on the subject of knurling. For some time it had been recognized that, in spite of the care the draftsmen would take in specifying proper knurling information on the drawings, the Screw Machine Department frequently had difficulty in producing a quality prod-

[1] *Transactions of the ASME*, April 1949, pp. 215-226. (Published by The American Society of Mechanical Engineers, 29 West 39th Street, New York 18, N. Y.)

Winding and finishing cable assemblies for electric accounting machines at the IBM Endicott, N. Y., plant.

uct primarily because of failure of the knurl to track properly. Subsequent investigation indicated that none of the available trade pitches would track on commercially available stock sizes without prior machining. Also that knurls were made to such loose specifications that two knurling tools having the same specifications would not perform alike when applied to the work. As a result of thorough study of the technique of knurling, new tool specifications were issued. IBM has now standardized on four pitches to replace the great number of pitches used prior to the study. Tools to the new specifications track on almost any commercially available stock size and provide uniform performance. Tools made to the new specifications perform satisfactorily and have saved untold hours in setup time in the Screw Machine Department. In addition, engineering specifications and drawing information can be determined with a minimum of effort.

Preparedness of Publications

Development of Design Data

The method of recording information developed in conjunction with a subject, so that it may be useful both for reference in design and as an aid in instruction, is an important part of this program. Several types of publications are prepared, each depending upon the nature of the material.

For example, design procedures are called Engineering Bulletins and Engineering Memorandums, and make up the contents of a single binder called Book I. Book II is similar except that it contains only design data regarding material. A third book contains IBM part number reference to an established classification of preferred size and common usage items. The same principles are followed in the preparation of material specifications used by the Engineering, Purchasing, and Inspection Departments, and in reporting results of special investigations.

Conference Method

Basic investigation work on a project is not confined to this one group. Individuals and departments throughout IBM are constantly being urged and encouraged to develop new ideas, improved methods, and to establish factual data for improvement of operations. In such cases, full cooperation is extended so that material of engineering interest is published and distributed in bulletin form.

The conference method has been found to be very effective. The broad exchange of information obtained in this manner results in the settling of differences of opinion, and makes possible the effective implementation of the final publication.

At least two fundamentals have been found to be essential for these conferences: first, the opportunity for open discussion, unprejudiced by the wishes or findings of the sponsoring personnel; and second, specific written recommendations for both the subject matter and action to be taken must be presented at the meeting by the sponsor group.

Develop Ideas

Original and valuable ideas always develop when a meeting is thrown open for general discussion after stating a clear and concise objective. The good ideas can be readily incorporated and the applicable ones effectively recognized if a post-conference draft of the subject is carefully prepared and distributed for final review. One good conference on a subject is frequently sufficient to permit final approval by mail, although subsequent meetings of a few concerned individuals may be helpful to iron out details. It has been found advisable to establish a distinct and representative approval committee at the start so that the objective can be understood, without placing restrictions on either those attending the meeting or the ideas they submit. A man with the detailed "know how" to represent a department manager at a meeting assures that detailed technicalities will be fully and ably considered, and that agreements so arrived at will be recognized by the affected departments of the business.

The development of a new standard has valuable educational aspects when carried out on a conference basis. Although a conference to cover a new standard is generally made up of very few people, each person present represents an IBM department where it will be of the greatest interest. In this way new standards are not only more deeply appreciated by the departments affected, but they become valuable preliminary education in those areas where the standard ultimately will be used. As copies of each new standard are distributed, departmental meetings are often held for the purpose of reviewing the standards, and their application is explained and discussed. Another educational aspect, in the introduc-

(*Continued on page* 321)

Photos Taken Inside the IBM "Brain"

Most intricate calculating machine so far produced by IBM is the Selective Sequence Electronic Calculator—the IBM electronic "Brain". With a "memory" capacity of 400,000 digits, the "Brain" reads instructions, stores them in memory units, selects them during calculation, and modifies them when necessary.

Presently it is solving a third problem for the Atomic Energy Commission. The problem's solution by the machine will be accomplished in about 2½ months—one year was required to plan and set up the problem for the machine. A mathematician, working with paper and pencil, would need 1,500 years to solve the same problem.

Above (left) A. W. Brooke, chief calculating engineer, inspects intricate cabling in back of the "Brain's" sequence unit. (Right) Mr Brooke is putting a standard IBM relay in the relay memory unit, an electromagnetic system which records and stores for a period of a few seconds 150 twenty-digit numbers for use in the calculator. Below (left) Paul Baumgarte, engineer, reads punched tapes which record and store 20,000 twenty-digit numbers for use within minutes. Miss Amy Bushman, mathematician, is at the console control desk. Below (right) H. Kenneth Clark, chief of the mathematical staff, examines one of the drums on the automatic table "look-up." The calculator automatically spins the tape to find any desired mathematical references.

Emergency Calls for Joint Use of Standardization

IN an article appearing in *Ordnance*, November 1950, Vice Admiral G. F. Hussey, Jr (USN, retired), now managing director of the American Standards Association, calls attention to the "need for achieving standardization" which, he says, "is greater than ever in the emergency which confronts the country." A few quotations from Admiral Hussey's article follow:

"In this day when the arming of Allies is a major problem it is clear that a considerable degree of standardization is essential if the maximum flexibility is to result from the arms provided from one or more sources to several using organizations. For example, had there been at the time of World War II any considerable degree of international standardization, it is likely that the installation of 40-mm anti-aircraft batteries in the French battleship RICHELIEU would have been accomplished as a routine job instead of its requiring specially designed conversion equipment to adapt the electrical equipment on the mounts to the electrical supply of the ship. Also, had there been any substantial degree of standardization among the Armed Forces of our Allies, we would not have been plagued with the problems of procuring small quantities of 315-mm bombardment projectiles and vast quantities of 2-pounder pom-pom ammunition. The manufacturing problems presented by an order for British 18-inch aircraft torpedoes were entirely out of proportion to the importance of the item in the overall war effort. . . .

"When the United States entered World War II, 700 American Standards were immediately available for the war effort. These covered such basic items as mechanical standards for parts, bolts, screws, bearings, drawings — the electrical standards for motors, wires and cables, insulators, switchgear—the safety standards for the protection of workers. To meet the emergency situation, special streamlined procedures were established to enable industry to keep pace with the mobilization program and military procurement. In the ensuing war years, 535 standards were processed through the clearinghouse facilities of ASA, 85 percent of which were directly concerned with war production. This experience demonstrates clearly the value of a national coordinating body through which the military and civilian agencies of the government can team up with industry to reach speedy agreements and harmonious decisions on standardization requirements.

"Today the need for achieving standardization, so that the products required by the military can be produced speedily and economically, is greater than ever in the emergency which confronts the country. It is, therefore, again essential that the Armed Forces should be able to avail themselves of the facilities of the American Standards Association in solving their own urgent problems with the aid of industry. Within the past two years, legal questions have been raised which are preventing the full utilization of ASA machinery by the Armed Forces. Means must be found to eliminate these road blocks and once again make available to the Armed Services the free use of this time-tested system of all-party-at-interest standardization."

Federal Specifications

(*Continued from page* 314)

used until Federal specifications can be promulgated. It is believed that this recommendation will help the USAF in its standardization program and will help many people to become acquainted with the high quality of American Standards. This will help in faster coordination of the new Federal specifications because many contracting officers will thereby become familiar with the standards approved by ASA even if they have not already purchased chemicals on these standards.

By acting as a clearing house for standards of the kinds which have been discussed, the American Standards Association is doing much to speed up the production of adequate Government specifications on photographic commodities. The problem of coordination with industry is greatly diminished insofar as Government agencies are concerned. Industry is also relieved of much of the problem of separate coordination with various Government agencies, many of which are represented on ASA committees. This example of cooperative effort has already brought forth much good, and is expected to be in even greater evidence in the future.

• • **A Gray Warning**—The National Machine Builders' Association has considered it important to call its customers' attention to the American Standard for Gray Finishes for Industrial Apparatus and Equipment, Z55.1-1950. As some Government departments are specifying the new American Standard shades, it is important to remember that the Association's light gray 7-B and American Standard No. 49 are so nearly identical that they can be used interchangeably with confidence, the Association declares. If a dark shade is specified, however, "care must be taken to determine in advance if the Association's old gray will be accepted in lieu of ASA No. 33," it warns.

• • **Russia in the ISO**—The USSR member body of the International Organization for Standardization has accepted the secretariat of Technical Committee ISO/TC 65 on Manganese Ore, and Technical Committee ISO/TC 55 on Timber, according to an announcement just received from the ISO General Secretary. The USSR member is drafting a scope for these international projects.

Sweden Standardizes for Economy

A TEAM of standards officials from Sweden is spending November and December in the United States studying standardization techniques. On their return to Sweden in December, they will report to the Standards Association of Sweden and to Swedish industry on how standards are developed and how they are used by U. S. industry in efficient, low cost mass production. They will present recommendations based on what they learn.

Olle Sturen, Executive Secretary of the Swedish Standards Association, is studying standardization techniques in general; Jan Ollner, Executive Secretary of the Swedish Electrotechnical Commission, is spending his time with the electrical industry; and Ake Ekelund, Executive Secretary of the Building Section of the Swedish Standards Association, is visiting contractors, architects, and building officials. They are planning to call on companies, associations, laboratories, and government departments.

1,500 Swedish Standards

In Sweden, approval, publishing, and information about all standards is centered in the Swedish Standards Association (Sveriges Standardiserings Kommission). Some 1,500 standards have been approved as Swedish Standards. The Association is also the center for international cooperation.

Technical work on standards is done by affiliated sections in each field. These act independently of the Association, although their setup and method of operation must be approved by it. When a standard is completed it is sent to the Association for approval, publication, and distribution.

The Electrotechnical Commission and the Building Section are two of the 14 principal industry divisions. Others cover mechanical engineering, hospital, metals, agriculture, packaging and materials handling, paper and typography, beer, agricultural products, textiles, plastics, and mining.

The Swedish Standards Association is partly supported by a grant from the government which it uses for its own activities and distributes among the technical sections. The Association and most of the individual sections, however, receive their principal support from industry.

The building work is an exception. It is supported almost entirely by the government. As in the case of most countries, Sweden is suffering a housing shortage, although some 45,000 apartments were built last year, at a cost of 1 billion kronor ($200 million). Despite this building program, rents are taking too large a slice of the worker's income and the government is doing everything possible to encourage money-saving and space-saving methods in the building industry, Mr Ekelund explains.

Organized as recently as 1942, the Building Section has chalked up as its most important accomplishment the standardization of kitchen equipment. Dimensions of about 40 cabinets have been standardized. These can be combined in any variety or number adapted to the size and needs of the family using them. Sizes of electric stoves have been standardized in cooperation with the electrical section, and a great deal of work is being done on other household appliances.

Modular Doors

Approximately 50 per cent of the doors used in Sweden are now made according to Swedish Standards. This has resulted in a saving of about 450,000 Swedish kronor ($90,000) per year as compared with the cost of doors before standardization. The cost of the research on which the standard sizes were based was about 50,000 kronor ($10,000).

One of the most important and far-reaching projects under development is on modular standards. The modular system has not yet been put into use because of the almost revolutionary change in methods it represents, Mr Ekelund said. He is planning to study every phase of the work done

on modular standards in the United States to take back as a guide for Swedish industry.

Some 60 committees are working on electrical standards through the Swedish Electrotechnical Commission, in which all electrical standardization work is centralized. These committees cover every phase of the electrical industry, from power transformers to radio components, with the exception of safety regulations which are under the jurisdiction of the Government. Organized in 1907, this section can show an impressive record of accomplishment. To a great extent, electrical equipment sold in Sweden is made in accordance with Swedish Electrotechnical Standards (SEN). This simplifies problems for customers when ordering and for manufacturers when offering equipment for sale.

Standardization plays an important role in encouraging the use of electricity, and there are special committees dealing with standardization of equipment and details for distribution networks. A result of this activity has been development of new standard types of distribution transformers. Thus the people of a small village, meeting to decide whether the

village should be electrified on a co-operative basis, will no nonger find the cost of the transformer to be the deciding factor, Mr Ollner explains.

Every household feels the benefits of the standardization work, since an electric plug can be used in any outlet receptacle throughout Sweden. Recently approved sizes and ratings of fluorescent tubes follow American Standards.

Electric Motors

Among other things, Mr. Ollner expects to discuss dimensional standards for electric motors with the American Standards Association and with the National Electrical Manufacturers Association. Standards similar to NEMA standards are needed in Sweden, he declares. In addition, however, Sweden is interested in international agreement on standard dimensions. On recommendation of the Swedish Standards Association, an international project has been set up as a subcommittee of the International Electrotechnical Commission's Committee on Rotating Electrical Machinery. Sweden holds the secretariat for the work of this subcommittee on dimensions of electric motors. The first meeting of the subcommittee was held in London, England, in November.

The Swedish Electrotechnical Commission, working through the Swedish Standards Association, which is responsible for the international program, has taken an interested part in many of the IEC projects. In addition to representation on many of the committees, the Association holds the secretariat for IEC Technical Committee 17 on Switchgear.

In the general international standardization program, as represented in the International Organization for Standardization, the Swedish Standards Association holds the secretariat for the important project on Screw Threads, ISO/TC 1 and for Ball and Roller Bearings, ISO/TC 4. It is a participating member of 48 of the ISO technical committees.

Building and electrical engineering, represented by Mr Ekelund and Mr Ollner, important as they are, represent only two of the active standardization sections. In addition to the widely used standards in these fields there are others too numerous to include in this short summary, covering as wide a range as paper and potatoes. The standardization of bicycles, for example, Mr Sturen cites as a project of significance to a large segment of Sweden's population, who rely on bicycles for long vacation trips as well as for town shopping. Standard dimensions for bicycle parts make it possible to pick up an interchangeable repair part in even the remotest section of the country.

This wide variety of standards is helping to speed production and cut costs throughout the Swedish economy, Mr Sturen declares.

The importance of the Association's work to the Swedish economy is reflected in the fact that the chairman of the Association, now Mr Hugo Edstrom, is appointed by the King. Directors are drawn from a broad cross section of the technical societies and associations in all fields. The Association's staff is headed by Folke Lindgren, managing director, with Mr Sturen, executive secretary, as his assistant. A staff of 75, in the affiliated divisions as well as in the Association, carries on the standards work, with some 1,000 experts in various fields responsible for the technical development of the standards themselves.

• • **Pots and Pans for Restaurants**—Standard Dimensions are to be developed for pots, pans, refrigerator trays, and similar containers and utensils used in preparing and serving food in restaurants and other large-scale feeding operations. A conference of representatives of the associations connected with the mass feeding industries and manufacturers of utensils and containers decided October 23 to ask the American Standards Association to organize a committee for this purpose. Committee members will represent a cross section of all those who have a special interest in the proposed standards. The committee will determine what standards should be developed and will do the work needed to develop them.

The October 23 conference was held following a request to ASA from the National Restaurant Association. Armin Kusswurm, secretary of the Association, said restaurant owners are confident that standardization of equipment manufacture on more efficient lines will increase the income of their industry.

Wasted Motion

"The restaurant industry," Mr Kusswurm said, "takes in less dollars per individual employe than any other field. This is because of wasted motions due to improperly designed equipment, which is made in all shapes and sizes by manufacturers. The only way the situation can be changed is by the development of more efficient equipment on a standardized basis."

The principal factor in wasted motion in restaurant operation lies in equipment designed so that cleaning is difficult and time-consuming, according to Mr Kusswurm. He said standardized, easy-to-clean utensils and containers will result in greater sanitation in public feeding industries and will step up volume through more efficient operation.

Many Groups Interested

The meeting preceding authorization of the new committee was attended by representatives of the restaurant group and ten other trade associations connected with mass feeding industries. Also present were executives of five leading manufacturers of utensils and containers.

The Army Quartermaster Corps, the Navy Supply Branch, the Veterans Administration and the Bureau of Human Nutrition of the United States Department of Agriculture also were represented at the meeting. Spokesmen for these groups pointed out that the Government definitely is interested in improved and standardized mass feeding equipment, primarily because of the increase in the armed forces.

(*Continued from page* 316)

tion of standards to the engineering groups in IBM, is the use of standards publications as text material in IBM's Organized Educational Program.

Preliminary Review

In order to accomplish the widest possible utilization of engineering bulletins, the Standards Group reviews all new drawings before they are released for use in the Manufacturing Group, and recommendations are made whenever variations from accepted programs is evident. These recommendations receive serious consideration and result in either a change in the presentation of the drawing or improvement in the published information. It is widely recognized that, when drawings do conform to established accepted practices before they are released, benefits can be realized in each succeeding step in the manufacture of the part represented.

Aid in Manufacturing and Quality Control

Tool engineering, manufacturing, and quality control operations at IBM are among those that benefit by the standards publications. Although these groups have instructional material specifically aimed at their operations, such material is very often prepared on the basis of the accepted practices described in engineering bulletins. Due to the conference method used in the preparation of the material by the Standards Group, these departments are invariably included in the various study groups that are essential in the preparation of material. As a result of this coordinated effort, it has been possible to issue a standard manufacturing practice dealing with so-called shop-run tolerances. Because of the importance of such a standard, it was first introduced on a trial basis for about a year, whereupon, with only minor revisions, it became an accepted practice and is now considered as part of the engineering specifications of each drawing.

A condensed version of several engineering bulletins, in which shop-run tolerances have been included, is issued as a supplementary publication. This pamphlet form makes it practical to submit vital information to outside vendors and sub-contractors. This, in turn, permits manufacturing organizations outside of IBM, who supplement the corporation's manufacturing facilities, to work to the same standards of quality maintained within the corporation's manufacturing organization.

Introduced by Bulletin

Many standards established by technical societies, particularly those accepted by ASA, are introduced into the corporation through this channel. For instance, the new American Standard on Unified Screw Threads was introduced by means of an engineering bulletin after the subject had been reviewed. The problems involved mutual interests of both engineering and manufacturing departments, and by coordinated investigation, the subject was adopted by both design and application departments with full respect for the benefits and technical advancements concerned.

Supplemental Activities

Reference Facilities

In the process of collecting, compiling and issuing engineering data, the standards group accumulates considerable material which is cataloged for reference purposes and used widely by engineering personnel. To date, much of this activity has been in creating an extensive cataloged library of vendors' publications, in addition to trade publications, society journals, and new literature reviewed by the group. Copies of papers, texts, and extracts from publications which have direct concern with materials, processes, and applications in the production of parts are obtained and made available to persons interested. For the purpose of promoting a wider application of components that have similar functions, the standards group is maintaining a file and complete cross-reference of drawings of similar and commonly used parts. This provides a basis for uniformity and elimination of duplicate design effort in part presentation.

These files are used frequently by designers and draftsmen.

Common Parts Book

They are also the basis for the maintenance and enlargement of the Common Parts Book. The listings in this book show part numbers and specifications of items which are preferred because they are commercially available, have numerous applications in the existing product, or have particular economic design advantages. To make this material readily available, each designer is provided with a complete book which is kept up-to-date by the Standards Group.

Cataloging Springs

On the basis of the spring design procedure already referred to, IBM has been successful in cataloging springs for ready selection by designers whenever the new specifications were applicable. This information is included as spring gradients and specification data in the Common Parts Book and serves as another means of further reference necessary for additional part numbers.

A complete file of ASA publications is maintained and members of IBM's Engineering Department, interested in these activities, are actively participating in several of the American Standards Association committee activities. This is an essential and interesting part of the Standards Group functions.

Mutual Benefit

All IBM personnel benefit by these activities. Opportunity is provided for the expression of ideas, and assistance is given to those who are anxious to learn. There is a continuous active participation in technical advancement and every individual who participates in this program, or assists in any way, is benefited.

Standards From Other Countries

MEMBERS of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received.

For the convenience of our readers, the standards are listed under their general UDC classifications.

001.4 Scientific Nomenclature. Terminology

THE NETHERLANDS	N
Technical Physics. Vocabulary	5012

629.13 Aeronautics

FRANCE	NF
Aeronautical Bolts, Tolerances for	L 002 70
Fine Screw Threads	L 004 23
Calibrated Screw, Hexagonal Head	L 176 29
Turnbuckle, Assembly	L 176 90
Turnbuckle, Details	L 176 91.1-.3
Spark Plug, Shielded, for Aircraft Motors	L 225 05

662.6/.9 Fuel Industry. Industrial Heating

GERMANY	DIN
Solid Fuels. General Outline of Tests	51700
Sampling of Fuel for Test	51701/2
Sieve Testing of Pulverized Coal	51704
Determination of Heat from Burning Fuel	51708
Tumbler Test for Coke	51712
Test for Water Content in Coal	51718
Test for Ash Content in Coal	51719
Determination of Volatile Matters	51720
Determination of Carbon-and Hydrocarbon-Content in Coal	51721

POLAND	PN
Symbols for Various Mechanical Appliances for Coal Processing	G 09401

UNITED KINGDOM	BS
Combustion Testing of Domestic Appliances Burning Town Gas	717:1950
Thermal Insulating Materials Plastic Composition Flexible and Loose-Fill	1589:1950

664 Preparation and Preservation of Solid Foodstuffs

GERMANY	DIN
Mixing Caldron, Agitators, etc	8770-8774

RUMANIA	STAS
Edible Solidified Oils	965
Wheat Flour	877

UNION OF SOUTH AFRICA	SABS
Specification for Canned Beef Sausages	210-1949
Specification for Canned Vienna Sausages (Canned Frankfurter Sausages)	211-1950
Specification for Canned Beef and Pork Luncheon Roll	215-1949
Specification for Canned Ham Roll	216-1949
Specification for Canned Ham and Beef Roll	217-1949
Specification for Canned Liver Roll	218-1949

665 Oils. Fats. Waxes

THE NETHERLANDS	N
Method of Testing of Vegetable and Animal Oils and Fats	1046
Lubricating Oils. Determination of Ash Content as Sulphate	1639

POLAND	PN
Extraction Gasoline	C-96022

RUMANIA	STAS
Filled Bitumen Emulsion	558
Grease, Ordinary, Solidified	562
Filled Bitumen Paste	661
Cylinder Oil, Refined, Grade C-315	752

UNION OF SOUTH AFRICA	SABS
Linseed Oil for Paint, Raw, Refined, Boiled	86-1950; 87-1950; 88-1950

UNITED KINGDOM	BS
Vegetable Oils	628-32; 650-56:1950

666 Glass and Ceramic Industry

BRAZIL	ABNT
Recommended Specifications for Sanitary Ceramic Materials	EB-44 R
Absorbtion Test of Sanitary Ceramic Materials	MB-111 R
Ceramic Toilet Bowls	PB-6 R
Ceramic Wash Basins	PB-7 R

RUMANIA	STAS
Clay Tiles, Hollow	459
Gypsum, Industrial and Modeling	545
Oil Lamp Chimneys, Type FD	854

UNION OF SOUTH AFRICA	SABS
Method of Testing Refractory Material	016-1949
Fireclay and Silica Refractories	35-1949
Dimensional Specification for Refractory Brick	48-1949
	SASS
Specifications for Burnt Clay Building Bricks	227-1950

667 Dyeing and Bleaching Industry

THE NETHERLANDS	N
Titanium Oxide Pigment. Test Method	1530

UNION OF SOUTH AFRICA	SABS
Specifications for Blue-Black Writing Ink (Permanent)	225-1950
White Chalks	99-1949

669 Metallurgy

BELGIUM	NBN
Thermal and Chemical Treatment of Steels	151
Flat Billets, Steel	153
Steel Sheets for Riveted and Welded Structures	154
Carbon Steel Plates for Boilers and Pressure Vessels	205

CANADA	CSA
Standard Specification for Testing the Coating of Galvanized Iron and Steel Articles	Z76-1950

FRANCE	NF
German Silver, Chemical Analysis of	A 06-631

INDIA	IS
Specification for Aluminum Alloy, Ingots and Castings for Aircraft Purposes	202-1950
Specification for Zinc (Spelter)	209

ITALY	UNI
Photomicrographic Magnifications in Metallography	2956
Scales and Sizes of Photomicrographic Pictures in Metallography	2957
Round Bars, Forged Steel, Tolerances	3029
Square Bars, Forged Steel, Tolerances	3030
Hexagon Bars, Forged Steel, Tolerances	3031
Octagon Bars, Forged Steel, Tolerances	3032
Ordinary Steel Rods, Quality and Test Specifications	3033
Ordinary Steel Rods, Dimensions and Tolerances	3034
Erichsen Test Method for Metal Materials	3037
Foundry Silicon, Quality Specifications	3038

POLAND	PN
Commercial Iron Castings Chemical Composition	H-83110
Steel Strips, Cold Rolled	H-92321

RUMANIA	STAS
Wires, Carbon Steel, Hot Rolled	563
Silicon Steel Sheets for Electrical Engineering	673
Round Copper Wires for Winding Coils	685
Spring Steel	795
Carbon Steel Round Bars, Hot Rolled for Screws & Nuts	794
Structural Steel Alloys. Special Specifications	873
Carbon Steel Wires	889
Cold Drawn Steel Wires	R 890
Galvanized Steel Wires	891
Alloy-Steel Wires for Springs	892
Quality Carbon Steel Wires for Springs	893

SPAIN	UNE
Pure Aluminum—1 (1st melt)	38050
Pure Aluminum—2 (Remelt)	38051
Pure Aluminum—3 (used for deoxidizing Steel)	38052

SWITZERLAND	VSM
Pure Aluminum. Denomination and Chemical Composition	10842
99.5 & 99.99-Pure Aluminum. Mechanical & Physical Characteristics. Corrision Resistance	10845 a
Aluminum Alloys. Commercial Designation of Different Alloys	10846 a
Heat Treatment of Aluminum Alloys	10847 a
Aluminum-Manganese Alloys, Chemical & Physical Properties, Corrosion Resistance	10848 a
Aluminum-Magnesium Alloys, Corrosion Resistance	10849 a
Aluminum-Silicon-Magnesium Alloys, Corrosion Resistance	10850 a
Aluminum-Magnesium-Silicon Alloys for Electric Conductors, Corrosion Resistance	10851 a
Aluminum-Copper-Magnesium Alloys, Corrosion Resistance	10852 a
Aluminum-Copper-Nickel Alloys, Corrosion Resistance	10853 a
Aluminum-Zinc-Magnesium Alloys, Corrosion Resistance	10859

UNITED KINGDOM	BS
Steel Tubes for Automobile Purposes	980:1950

672 Articles of Iron and Steel

ARGENTINA	IRAM
Galvanized Steel Barbed Wire	544

674 Wood Industry

BELGIUM	NBN
Wood, Nomenclature of Principal Species used in Belgium	199
Terminology of Wood	202

CANADA	CSA
Specification for the Physical Properties and preservative treatment of Eastern White Cedar Poles	015.1-1950
Specification for the Physical Properties and preservation Treatment of Western Red Cedar Poles	015.2-1950

ITALY	UNI
Defects of Wood, Nomenclature, Classification	3016

RUMANIA	STAS
Grapevine Wooden Stakes	850

676 Paper Industry

RUMANIA	STAS
Paper and Cardboard. Trimmed Sizes	570

POLAND	PN
Paper Sizes	P-02001

677 Textile Industry

BRAZIL	ABNT
Rayon Yarn, Recommended Test Methods	MB-115 R

GERMANY	DIN
Spindles for Ring Spinning	64045
Warp Tubes, Light & Heavy, for Spindles DIN 64045	64063

POLAND	PN
Combs for Combing Machines	P-63503
Spinning Rings	P-63807
Spindles	P-63811/2/15/16

RUMANIA	STAS
Fabric of Mixed Cellulose Fiber and Merino Wool	728
Pure-and Mixed-wool Fabrics	778
Cloth of Pure and Mixed Wool	779/80
Cotton and Bast Fiber Fabrics	785/6
Cotton Fabric for Oil Cloth	848

SWITZERLAND	VSM
Bobbins of Spinning Frame	31620
Drafting Rollers, Diameters of	31650
Warp Beams of 150mm and 200mm Diameter in one or two Pieces	32222 thru 32227
Pirns for Automatic Looms, Two Types	32240/1

UNITED KINGDOM	BS
Woven Cotton Webbings	1664-68:1950

678 Rubber Industry

GERMANY	DIN
Tires for Motorcycles	7801
Tires for light Trucks	7804

RUMANIA	STAS
Automobile Rubber Tires	626

681.2 Instrument Making

GERMANY	DIN
Surface Plates	876, B1.1

RUMANIA	STAS
Fluid Flow Meters, Differential Type	894

SWITZERLAND	VSM
Oil Level Indicators, Straight and Angle Form, With Screwing or Flanged Connections, With or Without Cocks, Types A,B,C,D,E	19301 a through 19305 a

685.1/.4 Leather Work. Harness. Footwear Walking Gear. Gloves

POLAND	PN
Harnesser and Shoemaker's Tools	0-54001/2; 54005; 54008/9; 54011; 55500; 55508/9
Shoemaker Burnishers	0-54007/12
Harness Maker Tools	0-55501/2/5

RUMANIA	STAS
Semi-finished Leather Products. Classification	812

69 Building Practice and Industry

FRANCE	NF
General Commentary Relative to These Standards Relative Hydraulic Binders and Rules Regarding Acceptance Tests, Packing, etc	P 15 301; 15 311

691 Building Materials

ARGENTINA	IRAM
Method of Test for Flexure Strength of Concrete,	1547

AUSTRIA	ÖNORM
Tar Paper Roofing Specifications	B 2220
Magnesium Chloride Flooring	B 3554

CHILE	INDITECNOR
Terminology of Wood Species and Lumber	2.30-100
Lumber: Units, Dimensions and Tolerances	2.30-101
Portland Cement (New Revision)	2.30-27
Special Cement, Type A	2.30-92

GERMANY	DIN
Roofing Tar Paper, Both Sides Sand-covered	52121
Special Tar-and Tar-and-Asphaltum Roofing Paper	52140
Chalk	1280
Quicklime Mortar	4208
Cement Roofing Tiles	1115

POLAND	PN
Portland Cement No. 250	B-201
Portland Cement No. 400	B-206
Masonry Cement No. 150	B-209

693 Masonry Construction in Stone, Brick, Concrete and Agglomerates. Plasterwork. Tiling

POLAND	PN
Mason and Plasterer's Tools	I-59001/2/3; 59005/6; 59011; 59014/5; 59030/1
Bricklayer's Tools	I-59008/9/10

RUMANIA	STAS
Concrete Pipes	816

695 Roofing Materials

GERMANY	DIN
Asphalt Roofing Paper	52128

RUMANIA	STAS
Asphaltum Impregnated Cardboard	629

UNION OF SOUTH AFRICA	SABS
Specifications for Mineral Stabilized Asphaltic Roofing Felts Surfaced with Finely Powdered Mineral Matter	92-1949

696.1 Plumbing. Sanitary Installations. Fittings

FRANCE	NF
Nomograph for Calculating Water Pipes (Documentary Sheet)	P 41 205

744 Technical Drawings

RUMANIA	STAS
Symbols for Central Heating System	788
Layouts of Pipe Lines	869
Symbols for Surface Finishing	612
Conventional Representation of Screw Threads, etc	700
Conventional Representation of Gears	734
Conventional Representation of Welded Joints	736
Technical Drawings. Graphical Symbols for Welds	735
Graphical Symbols for Pipe Fittings	867/8

SPAIN	UNE
Alignment of Projections and Sections	1032
Line Types and Gages	1033
Lettering, Inclined and Straight	1034,1-2
Title Blocks, Specifications, Bill of Material etc.	1035,1-5
Conventional Breaks, Sections	1036

792 Theater. Dramatic Performances

GERMANY	DIN
List of DIN Standards Relative to Theater Technique	56900

Book Reviews

ASTM Standards on Cement (with related information). (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., 224 pp, heavy paper cover, $2.00)

This tenth edition presents 28 ASTM standard specifications and test methods. The specifications cover portland, air-entraining, blast-furnace slag, natural, and masonry cement. One specification also covers flow table for use in tests of hydraulic cement and another covers sieves for testing purposes.

The methods of test for portland cement include air content, autoclave expansion, chemical analysis, heat of hydration, and fineness (by air permeability apparatus and turbidimeter), also a test method for sodium oxide and potassium oxide in portland cement by flame photometry. Tests for hydraulic cement include compressive strength, normal consistency, sampling, setting time, soundness, specific gravity, tensile strength, and fineness. A test method for potential alkali reactivity of cement-aggregate combinations and a definition of the term "addition" as applied to hydraulic cement are also included.

Appendices furnish supplementary information on analytical balances and weights; a manual of cement testing; selected references on portland cement; and on the principle of the methoxyl method for determining vinzol resin in Portland cement.

Traffic Engineering Handbook. Edited by Henry K. Evans. (A joint publication of the Institute of Traffic Engineers and the Association of Casualty and Surety Companies. 1950. 520 pp, $6.00)

A revised and expanded edition of this comprehensive source book of techniques, principles, and standards relating to street and highway traffic control and design, is now off the press.

Sixteen of the foremost authorities on traffic engineering have contributed chapters to the book, prepared under the direction of the traffic engineering handbook editorial board, while 35 specialists and authorities in the traffic field reviewed the text.

Featuring 205 tables, 215 illustrations, 389 definitions of traffic terms, and 520 pages, the handbook covers such varied subjects as traffic accidents, traffic studies, roadway capacity and design, traffic signals, speed regulations and zoning, traffic signs, and street and highway lighting.

In addition, other chapters deal with vehicle and highway facts, vehicle motion, the driver and pedestrian, traffic markings and markers, parking and loading, one-way streets and arterial routes, traffic islands and pedestrian barriers, and pedestrian islands and bus loading zones.

ASTM Standards on Mineral Aggregates, Concrete, and Nonbituminous Highway Materials (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., 240 pp, $2.25)

All ASTM standards for concrete and concrete aggregates and for nonbituminous highway materials, as well as pertinent specifications for cement are included in this compilation now issued by the American Society for Testing Materials.

ASTM Standards on Rubber Products (with related information) (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., 652 pp, heavy paper cover, $4.75)

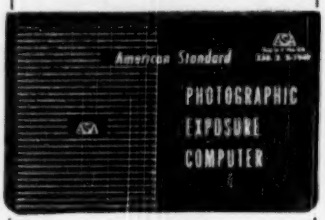
All standard and tentative test methods and specifications pertaining to rubber products issued through the work of the ASTM Committee D-11 on Rubber Products are included. The following list indicates what the standards cover: Processibility tests; chemical tests of vulcanized rubber; physical tests of vulcanized rubber; aging and weathering tests; low-temperature tests; automotive and aeronautical rubber; hose and belting; tape; electrical protective equipment; rubber-coated fabrics; insulated wire and cable; hard rubber; latex foam, sponge, and expanded cellular rubber; rubber cements; rubber latices; packing materials; non-rigid plastics; electrical tests; nomenclature and definitions.

Many of the specifications and tests have been revised recently.

• • **Royal Charter**—"The Standards Association of Australia takes pleasure in announcing that His Majesty King George VI has been graciously pleased to grant the Association's petition for a Royal Charter." Thus the Association announced the British Government's recognition of the important role of the standards program in Australia's industrial and economic development. "This mark of Royal favor is a gratifying tribute to the useful national service which the Standards Association of Australia has rendered during the past 27 years," the Association comments. "Moreover, the Charter will have practical significance for the future. Incorporation will give the Association legal status which will be of particular value in the conduct of the Association's activities."

R. F. Baker, vice-president and director, The Texas Company, is a newly elected member of the American Standards Association's Board of Directors, nominated by the American Petroleum Institute. Mr Baker is head of the Texas Company's Production Department and in his own words, "vitally interested in standardization of oil field equipment, machinery, and supplies."

For Christmas



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American Standards Association

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The Office Standards Impact

Excerpts from an address by T. H. McDonough, Manager—Office Services, H. J. Heinz Company, Pittsburgh, Pennsylvania; given before the Office Management Conference of the American Management Association, New York, N. Y., at the Hotel Statler, New York, October 30-31, 1950

An Office Standard is simply a carefully thought out method of performing a function or a carefully drawn specification covering a tool, machine, supply or product. It is the best that can be devised at the time the standard is drawn.

Mark well that phrase "at the time." Standards are not static. They are subject to change whenever a better one is developed.

Here are a few "For Instances" to prove office standards can and do improve productivity in the office.

The Aetna Life Insurance Company accomplished a reduction of 31 percent in the number of employees after their office work was standardized and measured.

Curtis Publishing Company's output for machine transcription increased from 1200 square inches per week to 4200 square inches as a result of work count and standards.

Wisconsin Electric Power Company has been measuring office production since 1919 and today they talk in terms of about 27 percent increase in productivity of workers whose activities are measured.

Reduce Clerical Expense

The Tennessee Eastman Corporation's study of stationery and office supplies resulted in standards that eliminated 40 percent of their stationery items and secured an average saving of 12 percent in cost not to mention the reduction in clerical expense of recording and handling such stores.

Another company set up paper standards for qualifications such as writing, erasing, copies, permanency, durability, opacity, and approximate number of copies per filing inch. These standards have been in effect for several years and have resulted not only in improving productivity, but have saved many thousands of dollars in paper costs, filing equipment and time making decisions regarding form specifications.

We have standards in our company for adding machines, calculators, duplicators, typewriters, bookkeeping machines, desks, chairs, many stationery and office supply items, office colors, office lighting, and most procedures. We are constantly striving to reduce our needs to acceptable standards so that we can save time on repeat specifications, requisitions and operations. These standards are giving us control, flexibility, uniformity in our far flung operations. It is our intention to continue our efforts to standardize all items and operations which require repeated attention of supervisors. We believe that the need for improving productivity applies to the office executive as well as to the office clerical employee.

Profit Planning Program

We have a profit planning program which places on each office departmental manager the responsibility of contributing his share towards its effectiveness. We believe that Office Management will only be able to carry its rightful share of the load when we know what must be done, how it should be done, who should do it, what is a fair day's work for each operation and have standards and work measurement which will give us the facts needed to determine what our office costs should be. To that end we have embarked on a much wider program of production standards and work measurement.

In most manufacturing industries, office management has done a good job of applying the principles of industrial engineering and standard costs to factory operations, but very little in the office. We must now apply these same principles to our office operations. It is necessary for us to set down in writing just what the products of our office are and what each costs. Until we have this kind of data, we can not honestly believe we are doing the most effective job of Profit Planning nor can we say we are doing all that there is to be done to improve office productivity.

While the impact of office standards in most cases will not prevent physical sudden death, the failure to undertake standards action may leave our office so far behind the times that top management may apply another kind of sudden death to the Office Manager who has failed to bring the impact of office standards to play on his office operations.

• • **Fire and explosion safeguards** for industrial ovens are presented by the National Fire Protection Association, in the Standard on Class A Ovens and Furnaces just off the press. These standards apply to ovens where explosive vapors may be produced from painted materials being dried or baked in the ovens, impregnated materials, coated fabrics and the like, and also where there is an explosion hazard from the fuel used.

"They point the way toward safeguards which should greatly reduce the frequency of fires and explosions in this class of equipment which has figured prominently in the record of industrial fires and explosions over a period of years," NFPA explains. "The standards stress the importance of adequate ventilation to prevent the development of explosive atmospheres and specify control equipment to assure adequate ventilation."

The committee in developing these provisions took advantage of the results of recent research which shows that the explosive limits of certain solvent vapors are lower at oven temperatures than at ordinary room temperatures and that a greater amount of ventilation is needed than had previously been recognized.

Copies of the Standard, NFPA No. 86, 72 pages, can be obtained from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass, at 75 cents.

AMERICAN STANDARDS

Status as of November 2, 1950

Legend

Standards Council—Approval by Standards Council is final approval as American Standard; usually requires 4 weeks

Board of Review—Acts for Standards Council, gives final approval as American Standard; usually requires 2 weeks

Correlating Committees—Approve standards to send to Standards Council or Board of Review for final action; approval by correlating committee usually takes 4 weeks

Building

In Board Review—

Specifications for Gypsum Plastering, A42.1 (Revision of A42.1-1946)

Specifications for Interior Lathing and Furring, A42.4 (Revision of A42.1-1946)

Sponsor: American Institute of Architects; American Society for Testing Materials

Submitted to ASA for Approval—

Pile Foundations and Pile Structures, A96

Sponsor: American Society of Civil Engineers

Withdrawal Being Considered by Board of Review—

Design for Joint Plates for Seven Inch Girder-Grooved and Guard Rails, E2-1923

Design for Joint Plates for Nine-Inch Girder-Grooved and Guard Rails, E3-1923

Design for Seven-Inch Girder-Grooved Rail, E4-1933

Design for Nine-Inch Girder-Grooved Rail, E5-1933

Design for Seven-Inch Girder Guard Rail, E6-1933

Design for Nine-Inch Girder Guard Rail, E7-1933

7-Inch 82 lb Plain Girder Rail and Splice Bars for Use in Paved Streets, E8-1933

7-Inch 92 lb Plain Girder Rail and Splice Bars for Use in Paved Streets, E9-1933

7-Inch 102 lb Plain Girder Rail and Splice Bars for Use in Paved Streets, E11-1933

Sponsor: American Transit Association

Reaffirmation Requested—

Specifications for Sieves for Testing Purposes (ASTM E11-39; ASA Z23.1-1939)

Sponsor: American Society for Testing Materials

Consumer

American Standards Just Published—

Methods of Sampling and Chemical Analysis of Alkaline Detergents (ASTM D 501-49; ASA K60.21-1950) $0.25

Sponsor: American Society for Testing Materials

In Correlating Committee—

Colorfastness to Light (AATCC 16-45) L14.53

Colorfastness of Acetate Rayons to Atmospheric Fumes (AATCC 23-46) L14.54

Resistance of Textiles to Mildew and Rot, and Evaluation of Textile Fungicides (AATCC 30-46) L14.55

Colorfastness to Perspiration (AATCC 15-45) L14.56

Colorfastness to Chlorine Bleaching (AATCC 3-42) L14.57

Colorfastness to Peroxide Bleaching (AATCC 29-45) L14.58

Water Resistance of Fabrics—Resistance to Hydrostatic Pressure (AATCC 18-41) L14.59

Resistance to Water Spray (AATCC 22-41) L14.60

Resistance to Absorption of Water During Immersion (AATCC 21-41) L14.61

Detection of Phototropism (AATCC 32-46) L14.62

Colorfastness to Pleating (AATCC 31-46) L14.63

Resistance of Textile Fabrics and Yarns to Insect Pests (AATCC 24-49) L14.64

Evaluation of Insect Pest Deterrents on Textiles (AATCC 28-49) L14.65

Specifications for Textile Testing Machines (ASTM D 76-49) L14.66

Methods of Testing and Tolerances for Knit Goods (ASTM D 231-46) L14.67

Definitions of Terms Relating to Textile Materials, L14.12 (Revision of ASTM D 123-48; ASA L14.12-1949)

Methods of Testing and Tolerances for Cotton Yarns, L14.13, (Revision of ASTM D 180-47T; ASA L14.13-1949)

Methods of Test for Asbestos Yarns, L14.18 (Revision of ASTM D 299-48T; ASA L14.18-1949)

General Methods of Testing Cotton Fibers, L14.23 (Revision of ASTM D 414-47T; ASA L14.23-1949)

Method of Test for Fiber Length of Wool, L14.32 (Revision of ASTM D 519-40; ASA L14.32-1949)

Methods of Testing and Tolerances for Single Jute Yarn, L14.34 (Revision of ASTM D 541-41; ASA L14.34-1949)

Methods of Testing and Tolerances for Glass Yarn, L14.36 (Revision of ASTM D 578-47T; ASA L14.36-1949)

Methods of Testing and Tolerances for Woven Glass Fabrics, L14.37 (Revision of ASTM D 579-47; ASA L14.37-1949)

Methods of Testing and Tolerances for Woven Glass Tapes, L14.38 (Revision of ASTM D 580-47; ASA L14.38-1949)

Methods of Testing and Tolerances for Woven Glass Tubular Sleeving and Braids, L14.39 (Revision of ASTM D 581-44; ASA L14.39-1949)

Methods of Testing Felt, L14.52 (Revision of ASTM D 461-47; ASA L14.52-1949)

General Methods of Testing Woven Textile Fabrics, L14.68 (Revision of ASTM D 39-39; ASA L5-1939)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Drawing Room Practice

American Standard Just Approved—

Abbreviations for Use on Drawings, Z32.13-1950 (Revision of Z32.13-1946)

Sponsors: American Institute of Electrical Engineers; American Society of Mechanical Engineers

Electrical

American Standards Just Published—

Grounding-Type Attachment Plug Caps and Receptacles, C73a-1950 $0.25

Sponsor: National Electrical Manufacturers Association

In Correlating Committee—

Test Code for Apparatus Measurement, Z24.7

Sponsor: Acoustical Society of America

Electrical Indicating Instruments, C39.1 (Revision of C39.1-1949)

Sponsor: Electrical Standards Committee

Submitted to ASA for Approval—

Sampling Electrical Insulating Oils, Method of Test (ASTM D 923-49; ASA C59.21)

Power Factor and Dielectric Constant of Electrical Insulating Oils of Petroleum Origin, Method of Test (ASTM D 924-49; ASA C59.22)

Gas Content of Insulating Oils, Method of Test (ASTM D 831-48; ASA C59.23)

Inorganic Chlorides and Sulfates in Insulating Oils, Method of Test (ASTM D878-49; ASA C59.24)

Detection of Free Sulfur in Electrical Insulating Oils, Method of Test (ASTM D 981-48 T; ASA C59.25)

Natural Block Mica and Mica Films Suitable for Use in Fixed Mica-Dielectric Capacitors, Specification for (ASTM D 748-49; ASA C59.26)

NEMA Standards for Laminated Thermosetting Products (Revision of C59.16-1949)

Method of Testing Sheet and Plate Materials Used in Electrical Insulation (Revision of ASTM D 229-46; ASA C59.13-1948)

Sponsor: American Society for Testing Materials

Terminology for Piezoelectric Crystals (49 IRE 14.S1), ASA C16.17

Methods of Testing Vehicular Communications Receivers (49 IRE 16.S1), ASA C16.18

Methods of Testing Amplitude-Modulation Broadcast Receivers (48 IRE 17.S1), ASA C16.19

Methods of Testing For Effects of Mistuning and Downward Modulation, (49 IRE 17.S1), ASA C16.12a, Supplement to American Standard Methods of Testing Frequency Modulation Broadcast Receivers, (47 IRE 17.S1), ASA C16.12-1949

Methods of Measurement of Television Signal Levels, Resolution, and Timing of Video Switching Systems (50 IRE 23.S1), ASA C16.20

Sponsor: Institute of Radio Engineers

Gas-Burning Appliances

In Board of Review—

Approval Requirements for Gas Water Heaters (Revision of Z21.10-1949)

Addenda to Approval Requirements for Gas-Fired Room Heaters (Revision of Z21.11-1949)

Approval Requirements for Installation of Gas Equipment in Large Boilers (Revision of Z21.33-1922)

Addenda to Approval Requirements for Central Heating Gas Appliances (Revision of Z21.13-1945)
Sponsor: American Gas Association

In Correlating Committee—

Installation of Gas Piping and Gas Appliances in Buildings, Z21.30 (Revision of K2-1927 and Z27-1933)
Sponsor: American Gas Association

Highway Traffic

In Board of Review—

Specifications for Traffic-Actuated, Traffic Signal Controllers and Detectors, D13.1
Sponsor: Institute of Traffic Engineers

Mechanical

In Board of Review—

Recommended Practice for Mechanical Refrigeration Installations on Shipboard, B59
Method of Rating and Testing Refrigerant Expansion Valves, B60
Sponsor: American Society of Refrigerating Engineers
Transmission Roller Chains and Sprockets, B29.1 (Revision of B29a-1930)
Inverted Tooth (Silent) Chains and Sprocket Teeth, B29.2
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Photography

American Standard Just Published—

Methods of Testing for Photographic Enlargers, Z38.7.6-1950 $0.35
Sponsor: Optical Society of America
Dimensions for Lantern Slides, Z38.7.19-1950 $0.25
Sponsor: Optical Society of America

In Correlating Committee—

Dimensions for Photographic Dry Plates (Inch Size), Z38.1.30 (Revision of Z38.1.30-1944)
Flash Synchronizing Equipment Bipost-Type Connecting Cord Ends and Pins, Z38.4.26
Flash Synchronizing Equipment Bayonet-Type Connecting Cord Ends and Pins, Z38.4.27
Sponsor: Optical Society of America

Safety

American Standards Just Published—

Standards for Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying Z33.1-1950 (Revision of Regulations for the Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1-1938) $0.25
Sponsor: National Fire Protection Assn.

AGA

(*Continued from page* 310)

started with preparation of a Gas Safety Code in 1915. This followed some years of experience by individual companies in standardization and testing, which finally led to recognition that no one company could carry on the research and development needed to make such a program a success. National standards would benefit both the industry and the gas consumer, it was agreed. Use of the Gas Safety Code indicated the need for further national development, and in 1922, the American Engineering Standards Committee, predecessor to the American Standards Association, was asked to take over the Safety Code. The procedures of the AESC (now ASA) brought all the groups concerned with the problem into active cooperation.

In 1927 the National Safety Code became an American Standard and in 1930, the American Gas Association's Approval Requirements Committee, formed in 1919, was organized under the rules of the American Standards Association as a sectional committee. Organization under ASA procedure has meant that standards for gas appliances have been passed upon not only by experts from the gas industry but also from government agencies, consumer groups, municipal authorities, insurance and safety organizations, and national associations and societies in other fields concerned.

New AGA Building

The AGA Laboratories implement this standardization program. Founded in 1925, they started with five employees and a building of 3,600 square feet. They now operate with a staff of 168, and are housed in quarters totaling more than 40,000 square feet in Cleveland and in Los Angeles. A new building is being started this year in Cleveland which will add another 20,000 square feet.

From the beginning, the Laboratories have worked closely with the Approval Requirements Committee, providing research data and checking the performance of the manufactured products. The first approval requirements were adopted in 1926, for ranges, space heaters, and gas hose.

Not only is preliminary testing done at the Laboratories to determine whether a product line meets the approval requirements, but in 1926 a program was inaugurated to check whether the appliances are being manufactured as approved. Inspectors now travel an estimated 150,000 miles a year to check appliances during production at the factory.

By 1940, 3,462 appliances were being examined during the year, and 423 manufacturers of approved equipment were participating. It is estimated that some 30,000 appliances and accessories have been certified since 1925. Because certification is only effective for one year, there is no problem in keeping gas-burning appliances up to date. American Standard approval requirements are continually being revised to keep them in line with new developments. [**Editor's Note:** Most recent standards completed through the activity of this committee, just approved by the American Standards Association, include a revision of the Approval Requirements for Gas Water Heaters, Z21.10-1950 and of the Requirements for Installation of Gas Equipment in Large Boilers, Z21.33-1950. Addenda providing up-to-date requirements have also just been completed for the American Standard Approval Requirements for Gas-Fired Room Heaters, Z21.11-1949; and American Standard Approval Requirements for Central Heating Gas Appliances, Z21.13-1945.]

• • **Commercial Standard**—Men's and boys' boxer shorts are included in a recommended revision of Commercial Standard CS137-46 on Men's and Boys' Shorts—Woven Fabrics. The proposed revision is now being circulated to manufacturers, distributors, and users by the Commodity Standards Division of the U. S. Department of Commerce. Standard methods of measuring for men's and boys' shorts made from woven fabrics, standard measurements and tolerances for boys' boxer and regular type (panel back) shorts; standard minimum measurements for men's boxer shorts, and men's panel back and center seam back shorts are provided. The proposed standard also carries a recommended means of identification through labeling, when the garments are produced in conformity with the standard. Mimeographed copies of TS-5013 can be obtained from the Commodity Standards Division, Office of Industry and Commerce, Washington 25, D. C.

What's New on American Standard Projects

Office Standards, X2

Sponsor: The National Office Management Association

A third draft of the proposed American Standard Dimensions of Desks and Tables for General Office Use, X2.1.1/185, has been submitted to the X2 sectional committee for approval. In order to coordinate the practices of the wood and metal desk manufacturers the following two modifications were included in this draft:

"The height of the desk or table shall be either 29 or 30¼ in., if fixed or adjustable between these levels.
"A tolerance of plus or minus ¾ in. shall be permitted in the height of the desk or table."

Additional standards are being prepared by subcommittee 1 of X2 on desired light reflectants of office furniture (excluding trim and decoration) finishes for wood desks, and provisions for installing telephone equipment on desks. Subcommittee 3 on Forms, Records, and Procedures voted in a meeting on October 30, 1950 to submit the Proposed American Standard Guide for establishing and Maintaining a Forms Control Program to letter ballot of X2. Two other proposals dealing with bank checks and a check list for use in ordering business forms were modified slightly as a result of comments received during subcommittee ballot. These will be recirculated to the subcommittee and, in absence of further objections, will be submitted to letter ballot of X2 30 days thereafter.

Standardization of Optics, Z58

Sponsor: Optical Society of America

Five proposed American Standards in the field of optics are now out to letter ballot of the Z58 sectional committee. They are:

Nomenclature for Radiometry and Photometry, Z58.1.1
Nomenclature and Definitions in the Field of Colorimetry, Z58.1.2
Method of Spectrophotometric Measurement for Color, Z58.7.1
Method for Determination of Color Specifications, Z58.7.2
Alternative Methods for Expressing Color Specifications, Z58.7.3

Insulated Wires and Cables, C8

Sponsor: National Electrical Manufacturers Association

David Raskin of the Armed Services Electro Standards Agency has been appointed liaison representative to the C8 sectional committee. The ASESA requested membership in a nonvoting, liaison capacity on this committee, and the request has just been approved.

Refrigeration Nomenclature, B53

Sponsor: American Society of Refrigerating Engineers

Copies of Part A—Graphical Symbols and Part B—Abbreviations of the proposed American Standard Refrigeration Nomenclature for Text and Drawings have been circulated to members of B53 and its subcommittees. These proposals were published in the August issue of *Refrigerating Engineering*, and reprints were sent out by the American Society of Refrigerating Engineers.

Washers and Machine Rings, B27

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

A new title and scope for project B27 has just been approved by the Mechanical Standards Committee. The scope now covers: "Development of product standards covering dimensions, physical properties and tests for plain washers, lock washers and retainer rings."

The title has been changed from Plain and Lock Washers, to Standardization of Washers and Machine Rings.

Dimensional Standardization of Bolts, Nuts, Rivets, and Similar Fasteners, B18

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Subcommittee 2 on Wrench Head Bolts and Nuts—A revision of American Standard Wrench Head Bolts and Nuts and Wrench Openings, B18.2-1941, has been submitted to industry for study and comment. Before submitting the proposal to sectional committee B18, the subcommittee will meet to discuss the comments that have been received.

Subcommittee 3 on Slotted and Recessed Head Screws—The subcommittee has been asked to prepare information on recommended hole sizes for the proper application of self-tapping screws in connection with revision of American Standard Slotted and Recessed Head Screws, B18.6-1947. It also has under consideration changes to implement the introduction of the new class 2A thread and other minor improvements.

Subcommittee 4 on Track Bolts and Nuts—In connection with the proposed revision of American Standard Track Bolts and Nuts, B18d-1930, this subcommittee is running an extensive series of tests to develop the strength characteristics of nuts of various sizes and thicknesses. These tests are being carried on at the Norfolk and Western Railroad Laboratory under joint direction of G. M. Magee and R. P. Winton. Time has been sacrificed in this work to make the subcommittee's report as conclusive as possible. However, it is estimated that the proposed standard will be submitted for approval before the end of the year.

Subcommittee 5 on Round Unslotted Head Bolts—There is a possibility that a bolt with an extremely short square for use in thin metal may be added to a proposed revision of American Standard Round Unslotted Head Bolts, B18.5-1939.

Subcommittee 10 on Glossary of Terms—A Glossary of Terms Relating to Mechanical Fasteners has been prepared and submitted as an interim report for use by industry. Copies of this report may be obtained from the American Society of Mechanical Engineers, 29 West 39

Street, New York 17. Eventually the subcommittee intends to include suitable illustrations and submit the Glossary for letter ballot approval.

Paper and Pulp Mills, P1

Sponsor: National Safety Council

Work is underway to revise the American Standard Safety Code for Paper and Pulp Mills, P1-1936. Comments and criticisms on the present code are being solicited by the committee.

Shafting and Stock Keys, B17

Sponsor: American Society of Mechanical Engineers

The B17 committee is reviewing both the American Standard Shafting and Stock Keys, B17.1-1943, and American Standard Woodruff Keys, Keyslots, and Cutters, B17f-1930. Attention is being given to the problem of correlating key dimensions and tolerances with those for cold-finished square bars.

Review of the Code for Transmission Shafting, B17c-1927, has been tabled for the present.

Acoustical Measurements and Terminology, Z24

Sponsor: Acoustical Society of America

Membership in two writing projects groups under the chairmanship of Dr Hallowell Davis, Director of Research, Central Institute for the Deaf, St Louis, Missouri, has just been completed. Those serving on group Z24-W-8, Screening Audiometer Specifications, are: F. E. Barron, Staff Research Engineer, The Maico Company, Inc, Minneapolis, Minn; J. D. Harris, PhD, Head, Sound Facility, U. S. Naval Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn; Dr D. M. Lierle, University Hospitals, University of Iowa, Iowa City, Iowa; F. W. Kranz, Sonotone Corporation, Elmsford, N. Y.; and Mrs E. L. R. Corliss, U. S. Department of Commerce, National Bureau of Standards, Sound Section, Washington, D. C.

Members of groups Z24-W-9, Speech Audiometer Specifications, are: R. E. Allison, Allison Laboratories, Wittier, Calif; E. P. Fowler, M.D., New York City; Dr A. Glorig, Reed General Hospital, Forest Glen, Maryland; and S. K. Webster, Ontarion, Inc, Chicago, Illinois.

Writing project groups of Committee Z24 are set up for a maximum period of three years to draft proposed standards in a specific field. If at the end of that time they have not produced an American Standard, the sectional committee will decide whether they shall be disbanded, reorganized, or permitted to continue.

Classification and Designation of Surface Qualities, B46

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

A new proposal for a roughness specimen standard will soon be circulated to the B46 sectional committee for comment and criticism. This proposal was developed at a subcommittee meeting June 13-14, 1950.

Pipe Flanges and Fittings, B16

Sponsors: American Society of Mechanical Engineers; Heating, Piping, and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry

Two proposed and two revised standards have been presented to the B16 sectional committee for consideration. They are: a proposed new standard for ring joint gaskets, to coordinate sizes of these products for piping and other uses; a proposed new standard for 300-lb malleable iron screwed fittings; and a revision of the American Standard Malleable-Iron Screwed Fittings, 150 lb, B16c-1939, and the American Standard Steel Butt-Welding Fittings, B16.9-1940.

Subcommittee 3 of B16 has considered three successive proposals for revision of American Standard Steel Pipe Flanges and Flanged Fittings, B16e-1939. The subcommittee hopes that it will be able to complete a revision of this 1939 edition and submit it to the sectional committee at an early date.

• • **International Lamp Meetings**—*ETL Notes*, issued by the Electrical Testing Laboratories, Inc, reports: "During the past year E. H. Salter, ETL Research Engineer, has traveled to Europe three times in order to participate in the preparation of international standards for electrical equipment. These trips, arranged for through the American Standards Association, have been made at the joint request of American manufacturers of lamps, ballasts and accessories.

"In October, 1949, Mr. Salter met with the International Commission on Rules for the Approval of Electrical Equipment (CEE) in London as the American Observer. This body is writing specifications, aimed primarily at safety, for electrical equipment for domestic and similar general use, including heating appliances, motor-operated appliances, radios, insulated wires, fuses, lampholders, fluorescent lamp auxiliaries, etc. The work was continued in Copenhagen in May, 1950.

"It is the avowed purpose of this group to produce internationally accepted specifications which may then form the basis for an international (CEE) mark of acceptance for these products in the 11 European countries that hold membership in the Commission."

• • **Engineering Exhibition in India**—January 1951 will see three international meetings in India. The Fourth Congress on Large Dams, the sectional meeting of the World Power Conference, and a meeting of the International Association of Hydraulic Research, are definitely scheduled. In addition, it is proposed to hold a meeting of the newly formed International Commission on Irrigation and Canals. In connection with these meetings, the Ministry of Works, Mines and Power of the Government of India is planning an exhibition of engineering activities in the fields covered by the conferences. Latest developments will be demonstrated, the Government of India announces.

News Briefs

• • **International Understanding** —"There is a definite trend toward a reasonable attempt to resolve differences in national viewpoints on standards," Henry St Leger, General Secretary of the International Organization for Standardization, declared during a visit to the American Standards Association early in November. Mr St Leger visited the United States to attend meetings of ISO Technical Committee 45 on Rubber at Akron (see page 331). While here he also called on the American Society for Testing Materials and several of the Government departments at Washington, and met with executives of the American Society of Mechanical Engineers and the Society of Automotive Engineers.

Henry St. Leger
General Secretary, ISO

During its three years, the ISO has held 36 technical committee meetings, and Mr St Leger has traveled to Asia, North America, and throughout Europe to attend them.

Arriving at an international understanding is even more of a problem than it is to reach an understanding nationally on a standard, Mr St Leger explained. However, he said, industrial groups in the various countries are beginning to recognize that there must be a reasonable international agreement on standards if they are to have a market outside their own countries.

The ISO has the distinction of being the only international organization outside the United Nations itself in which six of the countries in the Russian zone are members. Despite difficulties in arranging for representation at meetings, there has been a continuous exchange of information and a continually friendly relationship.

His administration has been directed toward maintaining open house at ISO offices, to make every one of the 29 members feel that ISO is their home and everything done there is open for their information, Mr St Leger explained.

He has been particularly heartened by increased interest in ISO shown recently by the Canadian Standards Association. Formerly represented on only eight technical committees, the CSA has recently asked for representation on 15 additional committees. This indicates an increasing recognition on the part of industry in this hemisphere that international agreements and exchange of information on standards is valuable in maintaining a high level of international trade, he pointed out.

• • **Gear Nomenclature** — An American Standard Gear Nomenclature, Terms, Definitions, and Illustrations B6.10-1950, has just been approved to help bring about use of uniform terminology in offices, shops, and textbooks. Prepared by a committee representing manufacturers, users, and independent experts, the standard provides a system of terms and their meanings grouped as a logical series rather than in alphabetical order. It also includes illustrative figures which can be referred to in investigations and discussions of gear problems.

Many of the definitions have been written in a way that makes them depend on one another. Thus, there is a line of relationship back from pitch diameter, to top circle, to pitch cylinder, and to pitch surface. This method of arrangement leads to a more comprehensive understanding of the concepts and geometrical relations.

The standard was developed by a committee jointly sponsored by the American Gear Manufacturers Association and the American Society of Mechanical Engineers under the procedures of the American Standards Association.

> The standard is now being published by the American Society of Mechanical Engineers. Copies can be ordered from the American Standards Association at $1.50 per copy.

An Apology to *Industrial Medicine and Surgery*

When STANDARDIZATION published Dr Robert A. Kehoe's "Solving the Solvent Problem" (October, Page 262), we failed to mention the fact that permission had been given by *Industrial Medicine and Surgery*, which had used Dr Kehoe's article in their July issue. We appreciate the privilege of using this important discussion of a widely recognized problem.

• • **President of Safety Engineers**—Dr William P. Yant, director of research and development for Mine Safety Appliances Company, Pittsburgh, has just been elected president for 1950-1951 of the American Society of Safety Engineers.

For the past three years, Dr Yant has been chairman of the Research Committee of President Truman's Conference on Industrial Safety. He is a director of the National Safety Council and vice chairman of that organization's Industrial Conference. He is known in ASA as chairman of the Sectional Committee on Allowable Concentrations of Toxic Dusts and Gases, Z37.

• • **Catalog Data**—Details of standard specifications are considered of such importance to their customers that the Midwest Piping & Supply Company, Inc, of St Louis, has included a 65-page technical reference section in its recently published catalog. Digests of more than 20 American Standards, and specifications of the American Society for

Testing Materials, on pipe, fittings, and flanges, are included. The section contains charts, tables, graphs, welding data, design formulas, metallurgical information, and other engineering data.

• • **First ISO Meeting in USA**—The ISO technical committee on Rubber, ISO/TC 45, met at Akron, Ohio, October 16-20, the first technical committee of the International Organization for Standardization to hold a meeting in the United States. Representatives from France, Italy, The Netherlands, New Zealand, Switzerland, United Kingdom, and USA were present. Experts connected with the rubber industry in the United States also attended on invitation of the chairman, Dr W. J. Naunton, Imperial Chemical Industries, Ltd., United Kingdom. Dr H. M. Glass of the British Standards Institution, which holds the secretariat for ISO/TC 45, had charge of the secretarial services for the meeting assisted by H. M. Lawrence, American Standards Association staff. General arrangements were handled by a committee of rubber manufacturers in Akron, under the chairmanship of L. V. Cooper, Firestone Tire & Rubber Company.

Discussions during the meeting centered largely on the following subjects connected with rubber technology: Hardness, tension stress-strain; tear strength; ply adhesion; ageing; abrasion; grading of raw rubber; inter-laboratory variations; mechanical stability and viscosity of latex; flex-cracking; rubber to metal-bonding; classification of vulcanized rubber.

Part of the last session was devoted to a discussion of a long-term program of work.

In agreeing on the scope of the work, a statement of its importance was also agreed upon. This called attention to the fact that standardization of rubber test methods and products is valuable because of the international character of the rubber industry, in the sense that the raw materials are generally not produced in the country where they are fabricated, and fabricated rubber products are a big item in the export trade of the most important industrial countries.

A proposal by the American representatives that many of the technical problems be considered by subcommittees or informal working groups was accepted. This procedure will permit understandings to be reached between meetings of the full committee and thus it is hoped to expedite the committee's program.

The next meeting of the committee is to be held in London in September or October 1951.

A report of the technical discussions will be available when the final minutes of this series of meetings has been prepared.

• • **Home Economics Chief**—Dr Louise Stanley, first chief of the U. S. Department of Agriculture's Bureau of Human Nutrition and Home Economics, and first woman to serve on the American Standards Association's Standards Council, announced her retirement this summer. Dr Stanley was head of the Bureau for 20 years, and under her guidance it achieved not only a national but a world-wide reputation. She also served as special assistant to the head of the Agricultural Research Administration, coordinating research in home economics, and has represented the United States at many international conferences. In 1947 she visited Brazil and Venezuela to make a nutritive survey for the American International Association for Economic and Social Development. Dr Stanley became an alternate member of the Standards Council in 1929 and a full member representing the U. S. Department of Agriculture in 1940.

• • **Standards World**—Due to the present international situation, *Standards World*, the quarterly journal of standardization published by S. P. Kaidanovsky, has been temporarily discontinued. Under present conditions, the magazine's contributors and its Editorial Advisory Board find it impossible to continue active participation in the program of *Standards World*, and to devote their time to the preparation of articles, the editors explain in announcing their decision to suspend publication.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946
(Title 39, United States Code, Section 233)

OF STANDARDIZATION, published monthly at New York, N. Y., for Oct. 1, 1950.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Standards Association, Inc., 70 East 45th Street, New York 17, N. Y. Editor, Ruth E. Mason, 70 East 45th Street, New York 17, N. Y. Managing Editor, none. Business manager, none.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

RUTH E. MASON,
Editor.

Sworn to and subscribed before me this 28th day of September, 1950.
(Seal)

LYDIA I. GUSTAFSSON
(My commission expires March 30, 1951.)

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Richtungswender

Invertitore di marcia

Inversor de sentido de marcha

Iro-inversigilo

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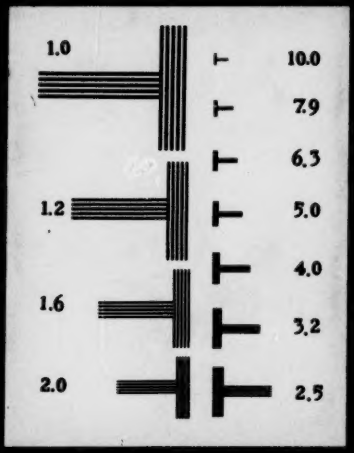
* *These phrases are French, German, Italian, Spanish, and Esperanto for* reverser: *a group of switches or contactors for the purpose of changing the internal connections so as to obtain the desired direction of motion.*

RESOLUTION CHART



100 MILLIMETERS

INSTRUCTIONS Resolution is expressed in terms of the lines per millimeter recorded by a particular film under specified conditions. Numerals in chart indicate the number of lines per millimeter in adjacent "T-shaped" groupings.

In microfilming, it is necessary to determine the reduction ratio and multiply the number of lines in the chart by this value to find the number of lines recorded by the film. As an aid in determining the reduction ratio, the line above is 100 millimeters in length. Measuring this line in the film image and dividing the length into 100 gives the reduction ratio. Example: the line is 20 mm. long in the film image, and $100/20 = 5$.

Examine "T-shaped" line groupings in the film with microscope, and note the number adjacent to finest lines recorded sharply and distinctly. Multiply this number by the reduction factor to obtain resolving power in lines per millimeter. Example: 7.9 group of lines is clearly recorded while lines in the 10.0 group are not distinctly separated. Reduction ratio is 5, and $7.9 \times 5 = 39.5$ lines per millimeter recorded satisfactorily. $10.0 \times 5 = 50$ lines per millimeter which are not recorded satisfactorily. Under the particular conditions, maximum resolution is between 39.5 and 50 lines per millimeter.

Resolution, as measured on the film, is a test of the entire photographic system, including lens, exposure, processing, and other factors. These rarely utilize maximum resolution of the film. Vibrations during exposure, lack of critical focus, and exposures yielding very dense negatives are to be avoided.

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